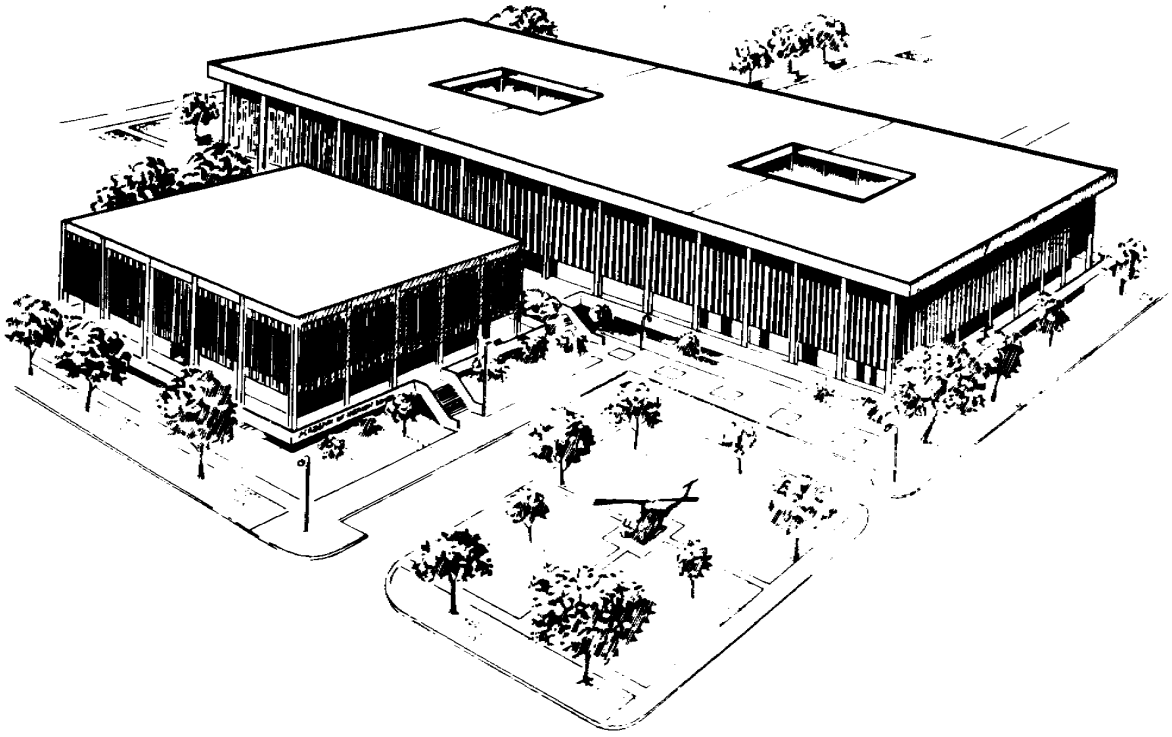
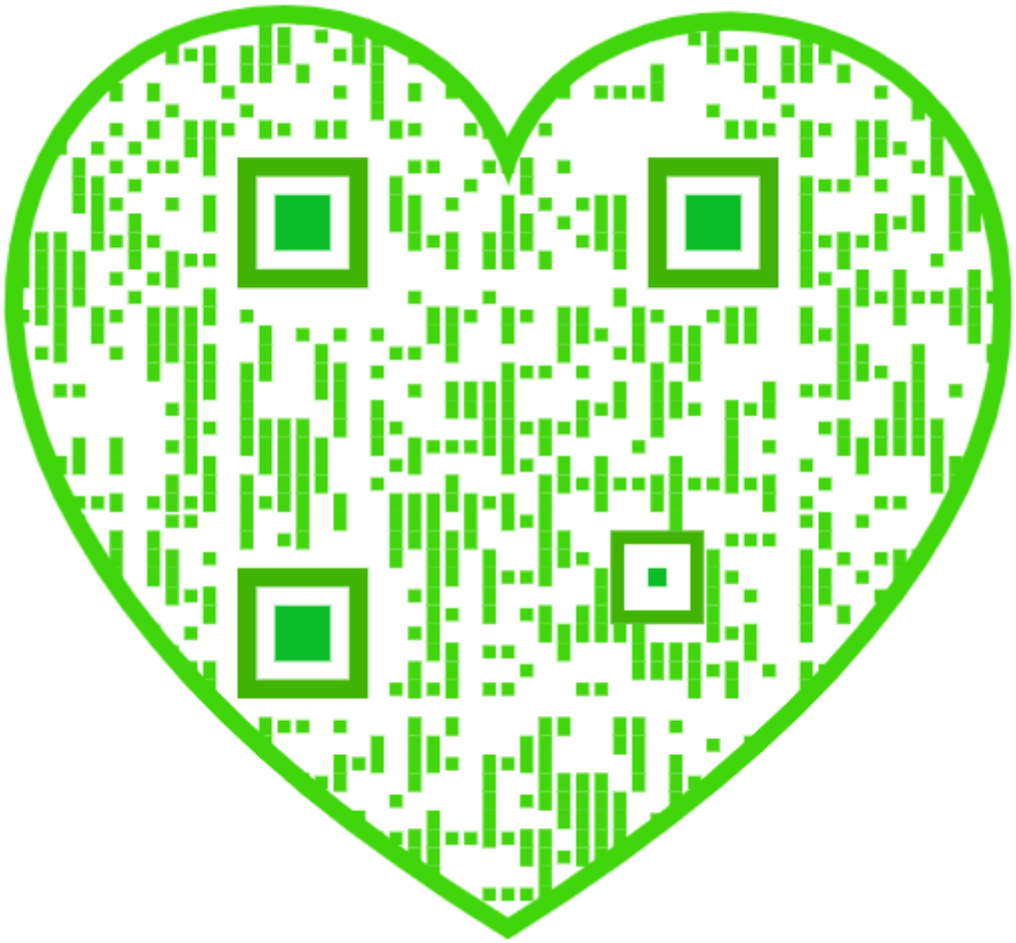
U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL
FORT SAM HOUSTON, TEXAS 78234-6100



PREVENTIVE DENTISTRY

SUBCOURSE MD0513 EDITION 200



DEVELOPMENT

This subcourse is approved for resident and correspondence course instruction. It reflects the current thought of the Academy of Health Sciences and conforms to printed Department of the Army doctrine as closely as currently possible. Development and progress render such doctrine continuously subject to change.

ADMINISTRATION

Students who desire credit hours for this correspondence subcourse must enroll in the subcourse. Application for enrollment should be made at the Internet website: http://www.atrrs.army.mil. You can access the course catalog in the upper right corner. Enter School Code 555 for medical correspondence courses. Copy down the course number and title. To apply for enrollment, return to the main ATRRS screen and scroll down the right side for ATRRS Channels. Click on SELF DEVELOPMENT to open the application; then follow the on-screen instructions.

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CLARIFICATION OF TERMINOLOGY

When used in this publication, words such as "he," "him," "his," and "men" 'are intended to include both the masculine and feminine genders, unless specifically stated otherwise or when obvious in context.

USE OF PROPRIETARY NAMES

The initial letters of the names of some products may be capitalized in this subcourse. Such names are proprietary names, that is, brand names or trademarks. Proprietary names have been used in this subcourse only to make it a more effective learning aid. The use of any name, proprietary or otherwise, should not be interpreted as endorsement, deprecation, or criticism of a product; nor should such use be considered to interpret the validity of proprietary rights in a name, whether it is registered or not.

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CORRESPONDENCE COURSE OF
THE U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL

SUBCOURSE MD0513

PREVENTIVE DENTISTRY

INTRODUCTION

Why is preventive dentistry necessary? Through the years, the incidence of oral disease has increased, and man has become more susceptible to dental disease than he was in the past. Data are available to show that 95 percent of all Americans suffer from dental caries sometime during their lifetime. At least 90 percent of the adult population suffers from some form of periodontal disease, and 30,800 new cases of oral cancer occur each year.

The dental standards of the military induction have been reduced to where we have essentially no dental standards in order to meet manpower requirements. The new inductee is placed first in basic training, during which time his dental treatment is limited to emergency treatment only. Following the completion of basic training, rapid follow-up care of the patient must be instituted to qualify him for overseas, remote, and short tour areas. The dental service is also responsible for the routine care of the entire military population--a population which is constantly on the move or is constantly in training. For these reasons, dental service is often interrupted. The dental service must also be able to provide expedient and routine treatment in the field. There is an overwhelming disparity between the amount of dental treatment required and the number of military personnel available to perform this treatment. The Preventive Dentistry Program was designed to alleviate this problem.

This subcourse is designed to acquaint you with the fundamental concepts of the Preventive Dentistry Program and the clinical and homecare procedures used in administering the program. It also seeks to familiarize you with the technical nomenclature used in the oral examination, prophylaxis, fluoridation, and education of the dental patient.

Subcourse Components:

This subcourse consists of four lessons and four appendixes. The lessons are as follows:

Lesson 1, Preventive Dentistry.
Lesson 2, The Oral Examination in the Preventive Dentistry.
Lesson 3, Oral Prophylaxis.
Lesson 4, Self-Care Procedures.
Appendix A, Guidance on Preventive Dentistry Program Administration.
Appendix B, Patient Education: Suggested Sequence of Appointments.
Appendix C, Disease Control Program Notes.
Appendix D, Preventive Dentistry Specialist Positions and Finger Rests Used in Scaling (Right-Handed Perspective).

Here are some suggestions that may be helpful to you in completing this subcourse:

--Read and study each lesson carefully.

--Complete the subcourse lesson by lesson. After completing each lesson, work the exercises at the end of the lesson, marking your answers in this booklet.

--After completing each set of lesson exercises, compare your answers with those on the solution sheet that follows the exercises. If you have answered an exercise incorrectly, check the reference cited after the answer on the solution sheet to determine why your response was not the correct one.

Credit Awarded:

Upon successful completion of the examination for this subcourse, you will be awarded 10 credit hours.

To receive credit hours, you must be officially enrolled and complete an examination furnished by the Nonresident Instruction Branch at Fort Sam Houston, Texas.

You can enroll by going to the web site http://atrrs.army.mil and enrolling under "Self Development" (School Code 555).

A listing of correspondence courses and subcourses available through the Nonresident Instruction Section is found in Chapter 4 of DA Pamphlet 350-59, Army Correspondence Course Program Catalog. The DA PAM is available at the following website: http://www.usapa.army.mil/pdffiles/p350-59.pdf.

LESSON ASSIGNMENT

LESSON 1	Preventive Dentistry.
LESSON ASSIGNMENT	Paragraphs 1-1 through 1-8.
LESSON OBJECTIVES	After completing this lesson, you should be able to:
	1-1. Identify the history of Army Preventive Dentistry.
	1-2. Identify the administration of Dental Readiness and Community Oral Health Protection.
	1-3. Identify preventive dentistry sources of information.
SUGGESTION	After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 1

PREVENTIVE DENTISTRY

Section I. INTRODUCTION

1-1. GENERAL

a. **The Concept of Prevention.** What is preventive dentistry? It is a philosophy of oral health care that embraces all phases of dentistry. It includes not only the prevention of dental caries and periodontal diseases through the use of proper diet, home care, and regular dental examinations, but it also includes proper restoration and replacement of teeth, root canal treatment, orthodontic braces, and even the surgical removal of teeth to prevent the spread of infection. Also of great importance in preventive dentistry is the discovery of other oral diseases, such as cancer, through soft tissue examinations. The profession of dentistry, as much or more than any other, stresses prevention in a total oral health fitness program. Following guidelines from the dental profession, most people can expect to keep their teeth a lifetime, thus minimizing the need for dental treatment.

b. **Need Assessment.** The need for preventive dentistry is readily evident. With the introduction of a more refined diet, modern man has become more susceptible to dental disease. Data indicates that at least 95 percent of all Americans suffer from dental cavities sometime during their lives. Another 90 percent of all Americans over the age of 35 suffer from some type of periodontal (gum) disease. Approximately 30,800 new cases of oral cancer occur each year. It is estimated that 52 percent of people with oral cancer survive five years after diagnosis. Around 8,100 people died from oral cancer in 1991.

c. **Solutions Available.** The dental profession has the knowledge and techniques available today to prevent 90 to 95 percent of all dental decay and periodontal disease. The increase in water fluoridation, topical fluorides, improved restorative materials, advanced surgical and orthodontic techniques, the use of pit and fissure sealants, and an increased public education program has made these advances possible.

1-2. HISTORY OF ARMY PREVENTIVE DENTISTRY

a**. Establishment of a Preventive Program.** The Army Preventive Dentistry Program had its first formal introduction in November 1960. At this time, Colonel Thomas McFall presented his paper entitled, "The Role of Prevention in Military Dentistry," at a meeting of military surgeons in Washington, D.C. The spring of 1961 marked the beginning of a drastic change in the dental health care philosophy of the Army Dental Corps. Prior to this time, Army dentistry had been largely a repair service. In other words, the correction of damage already done. From that point forward, the emphasis was on prevention of future dental disease. This program evolved with advances in oral microbiology providing greater understanding of the causes of dental disease and recognizing that most of these diseases are preventable.

b. **Preventive Dentistry Branch.** On 30 August 1962, a commitment to a formalized program was established with the publication of TB MED 5, "Preventive Dentistry." This document provided a basic outline of the principles of this program. To control the operation of this program, the office of the Chief of the Army Dental Corps was reorganized with the Preventive Dentistry Branch becoming one of the four main branches with the Dental Corps. Responsibility for the programs was given to the preventive dentistry officer.

c. **Necessity for a Military Preventive Program.** The man-hours lost to dental emergencies caused by oral disease is a serious problem for the Army at all times, but especially during training and combat. In contrast to the average civilian population, military personnel are more mobile, are often stationed in remote training areas, and are required to maintain a high level of oral and general health to fulfill combat readiness roles. Since dental treatment and follow-up care is often interrupted, it is extremely important to reduce the number of treatments required to maintain the soldier at maximum oral health. Reducing treatment visits through preventive practices also reduces time lost from training and reduces the number of trained dental professionals necessary to treat the military population. The Preventive Dentistry Program teaches the soldier how to prevent future dental diseases. It also teaches him how to maintain oral health after receiving dental treatment. The success of the Preventive Dentistry Program is due in part to education of the troops in the field. This approach ensures lower costs, fewer man-hours involved, and less occupation of valuable dental clinic chair space.

Section II. ADMINISTRATION OF DENTAL READINESS AND COMMUNITY ORAL HEALTH PROTECTION

1-3. COMMAND GUIDANCE AND RESPONSIBILITY

Within the United States (US) Army Medical Command (AMEDD), the Surgeon General (TSG), based upon guidance from the Assistant Secretary of Defense for Health Affairs, will approve policy concerning the Army Dental Readiness and Community Oral Health Protection Programs. The Chief of the US Army Dental Corps will advise and make recommendations to TSG concerning dental readiness and community oral health protection and appoint a Public Health Dentistry Consultant. Other command responsibilities are given in AR 40-35, paragraph 4a.

1-4. PREVENTIVE DENTISTRY GOALS

Today, the entire philosophy of professional dental education centers on prevention. From the incorporation of fluoride into developing teeth of children and application of pit and fissure sealants to basic research developing a vaccine against dental decay, the idea of disease prevention permeates dental education. Even through less than 2 percent of the total formal course work in dental school is spent directly on preventive dentistry, the philosophy itself is all important. The techniques of prevention are relatively simple when compared to certain repair treatments. However, patient education and patient acceptance are key to the program's success. All training of enlisted personnel in the dental science field contains instruction on preventive dentistry. The Dental Specialist (68E10) receives a minimum of ten percent of formal training in preventive dentistry. The Preventive Dentistry Specialist (PDS), the X2 ASI, receives up to 50 percent of their program in prevention, divided between the classroom and the clinic. Trained enlisted personnel have been invaluable for their role in patient education in preventive dentistry.

1-5. THE INSTALLATION PREVENTIVE DENTISTRY PROGRAM

a. Each military installation is responsible for setting up its own Preventive Dentistry Program using guidelines supplied by the Department of the Army, the Chief of the Army Dental Corps, and the Medical Command Preventive Dentistry Program manager. Each installation is also responsible for appointing a preventive dentistry officer. This officer may be assisted in the actual operation of his program by other dental officers, dental auxiliaries, or by a public health hygienist.

b. The preventive dentistry officer is responsible for developing training for all dental personnel, conducting oral health screening, and designing preventive programs to improve the oral health of the military community.

1-6. THE CLINICAL ORAL HEALTH AND HEALTH PROMOTION PROGRAM

The program consists of measures provided in Army dental clinics to prevent injury and oral disease and to promote health. This objective is achieved through annual dental exams for all personnel during their birth month. In addition to the exam, the patient is given a prophylaxis, a fluoride application, counseling on oral hygiene instruction, nutrition and tobacco and a follow-up appointment for any needed corrective treatment.

a. **Community Education.** A major portion of the community preventive dentistry program has been fluoridation of the water supply of all military installations when economically and technically feasible. Fluoridation of the water supply is the single most effective means of caries prevention in younger children today. AR 40-35 also mandates that each installation operate a preventive dentistry program for children (PDPC). This includes a yearly oral screening examination, a fluoride application, and, when appropriate, pit and fissure sealants. Also included are on-site school visits to teach brushing, flossing, and proper nutrition. Many preventive dentistry officers participate in radio and television interviews and publish articles in local newspapers to educate the community. Certainly not as well known as caries prevention, but just as important, is the Army's fabrication of protective mouth guards for family members and military athletes to prevent traumatic injuries. An excellent source of support for the community prevention program comes from organizations such as the Red Cross, parent-teacher associations, scouts, and military wives' clubs.

b. **Research.** To understand the causes and possible cures of oral disease and to develop more efficient and effective dental techniques, research must be conducted. A great number of advances in the dental profession have been produced at the US Army Institute of Dental Research (USAIDR) in Washington, DC. Along with several private civilian organizations and with Army support, research is constantly being conducted to produce new materials and techniques.

1-7. PREVENTIVE DENTISTRY TERMS

a. **Preventive Dentistry.** This philosophy of health service embraces general dentistry and recognizes preventive aspects of treating teeth and oral tissues. It also recognizes prevention of oral disease in the population through organized programs of oral health education, fluoridation, oral disease detection, dental research, and use of auxiliary personnel. Prevention has always been part of the Army Dental Corps' mission in its efforts to preserve the oral health of Army personnel. Accomplishment of the mission, especially in modern warfare, emphasizes the importance of preventive dentistry in the Army.

b**. Oral Hygiene.** This term refers to measures designed to minimize oral disease. These measures usually include, scaling, cleaning, polishing, application of pit and fissure sealants, and topical fluoride application. Oral hygiene also includes the practice of personal oral physiotherapy to maintain cleanliness.

1-8. GUIDANCE AND INFORMATION ON PREVENTIVE DENTISTRY

a. **Military Publications.** Establishment of an installation preventive dentistry program is described in AR 40-3, paragraph 10-9. Of help also is TB MED 576 and TB MED 577. (The full titles can be found in Appendix A.) The latest research developments in preventive dentistry from USAIDR can be found in most medical or dental libraries. A list of these publications can be found in Appendix A.

b**. Civilian Publications.** *Accepted Dental Therapeutics*, published by the Council of Dental Therapeutics of the American Dental Association, lists approved preventive dentistry treatments. These methods are those generally used in Army dental treatment facilities. Preventive dentistry information can also be found in publications from the National Institute of Dental Research and the U.S Army Institute of Dental Research. Information supplied to the public by commercial companies should be carefully analyzed and studied because of possible bias. Professional journals with appropriate information include *Journal of the American Dental Association, Journal of Public Health Dentistry, Journal of Clinical Preventive Dentistry, Journal of Dental Hygiene, Journal of Dental Research, Journal of Periodontology, Journal of Periodontal Research*, and *Journal of Caries Research*. See Appendix A for sources of information, both civilian and military.

Continue with Exercises

EXERCISES, LESSON 1

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the question, by completing the incomplete statement, or by writing the answer in the space provided at the end of the exercise.

After you have completed all the exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers.

1. What percentage of Americans suffer from dental cavities at some time during their lives?

   a. 100 percent.

   b. 95 percent.

   c. 90 percent.

2. What percentage of the adult population over the age of 35 suffers from some type of periodontal (gum) disease?

   a. 100 percent.

   b. 95 percent.

   c. 90 percent.

3. Approximately how many new cases of oral cancer occur each year?

   a. 30,800.

   b. 30,000.

   c. 26,000.

   d. 23,000.

4. One reason for the existence of preventive dentistry is an effort to reduce the amount of time spent treating dental emergencies.

   a. True.

   b. False.

5. All personnel are given an annual dental examination during their

   _____ .

6. At the annual dental examination, personnel are given:

   a. _____,

   b. _____ application,

   c. _____ on oral hygiene, nutrition and tobacco.

   d. and a _____appointment for any needed corrrective treatment.

7. What is the most effective single means of caries prevention?

   _____ of the water supply.

8. What does the Army makes to protect military athletes from traumatic mouth

   injuries? _____.

9. Where is the development of more efficient and effective dental techniques and materials conducted?

   _____.

10. List five measures taken to minimize oral disease.

    a. _____.

    b. _____.

    c. _____.

    d. Application of pit and fissure _____.

    e. Topical _____ application.

11. List three civilian publications providing current approved preventive dentistry treatments.

    a. Journal of _____.

    b. Journal of _____.

    c. Journal of _____.

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES, LESSON 1

1. b (para 1-1b)

2. c (para 1-1b)

3. a (para 1-1b)

4. a (para 1-2c)

5. birth month (para 1-6)

6. a. prophylaxis
   b. fluoride
   c. counseling
   d. follow-up (para 1-6)

7. Fluoridation (para 1-6a)

8. Protective mouth guards (para 1-6a)

9. U.S. Army Institute of Dental Research (para 1-6b)

10. a. Scaling.
    b. Cleaning.
    c. Polishing.
    d. Sealants.
    e. Fluoride (para 1-7b)

11. Any three of the following

    the American Dental Association.
    Public Health Dentistry.
    Clinical Preventive Dentistry.
    Dental Hygiene.
    Dental Research.
    Periodontology.
    Periodontal Research.
    Caries Research. (para 1-8b)

End of Lesson 1

LESSON ASSIGNMENT

LESSON 2	The Oral Examination in Preventive Dentistry.
LESSON ASSIGNMENT	Paragraphs 2-1 through 2-12.
LESSON OBJECTIVES	After completing this lesson, you should be able to:
	2-1. Identify the roles of the dental specialist and the preventive dentistry specialist.
	2-2. Identify basic information related to plaque, calculus, and stains.
SUGGESTION	After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objective.

LESSON 2

THE ORAL EXAMINATION IN PREVENTIVE DENTISTRY

Section I. THE ROLE OF THE DENTAL SPECIALIST AND THE PREVENTIVE DENTISTRY SPECIALIST

2-1. GENERAL

Preventive dentistry is, perhaps, the single most important aspect of dentistry. Preservation of the original structures of the oral cavity by preventing disease is far more effective than trying to fight dental disease once it has begun. The work of the dental specialist and the preventive dentistry specialist (PDS) is an integral part of any preventive dentistry program.

2-2. ROLE OF THE DENTAL SPECIALIST

a. The basic dental specialist (68E10), or dental assistant as they were formerly known, performs the following preventive dentistry tasks.

(1) Conducts oral history interviews.

(2) Instructs patients on basic oral hygiene care, to include brushing and flossing techniques.

(3) Performs and records plaque and gingival bleeding indices, and reports to the dental officer any changes from normal appearance of oral tissue.

b. In general, the dental specialist is assigned duties (given responsibilities) affecting not only the oral health of individuals but also the oral health of the military community.

2-3. ROLE OF THE PREVENTIVE DENTISTRY SPECIALIST

a. The preventive dentistry specialist (PDS) has received specialized training beyond the 68E10 level and carries the X2 additional skill identifier (ASI). Under the supervision of a dental officer, the preventive dental specialist, working with individual patients, performs the following tasks.

(1) Removes all tooth deposits both above and below the given tissue level.

(2) Performs root planing and curettage.

(3) Applies topical fluoride or other similar materials to the teeth.

(4) Instructs in preventive dentistry.

(5) Inserts and finishes both final and interim restorations.

(6) Applies pit and fissure sealants.

b. The PDS notifies the dental officer of conditions requiring further examination and treatment. In the military community, the PDS may have a major role in teaching prevention of oral disease. In both fields of endeavor, the PDS is the individual making direct contact with the public or the patient. His interest, attitude, and appearance, the manner in which he performs the required duties, and his enthusiasm and knowledge all will influence the acceptance of the PDS's professional efforts.

2-4. PATIENT MOTIVATION

Since human behavior is quite variable, there is no common motivational technique for every patient. This area is perhaps the most challenging and rewarding aspect of the practice of dentistry. Learning to be a good listener during your examination and oral interviews is essential to understand the patient's dental intelligence quotient, his priorities, and what his goals are concerning oral health. Learning these things about each individual gives a baseline from which to proceed. One must keep in mind that not all patients are as interested or motivated in oral health as those in the profession. Occasionally, one must accept the fact that some patients will never change their habits. However, one must not make the mistake of giving up too soon since humans tend to learn by repetition and conditioning. We can offer professional advice and guidance, but the patient must decide for himself how the advice will be used. The goal in a preventive dentistry education program is to convince the patient that new oral health habits, with the various associated behaviors, are beneficial.

2-5. PATIENT COMMUNICATION

There are many barriers to effective two-way communication with certain patients. Two of the most common are fear and inactivity.

a. Fear may be caused by a previously traumatic experience, information gained from others, or just fear of the unknown. Fear is generally not as critical a problem in preventive dentistry as it is in restorative or surgical procedures. Much of the patient's anxiety can be relieved by explaining what is going to happen and how it will be done. Most importantly, care about your patients. Patients can sense your concern, particularly younger children. It will make your job much easier and more enjoyable.

b. The second barrier, inactivity, can be eliminated by getting the patient involved in the education process. Let him demonstrate his brushing and flossing techniques, and encourage questions.

2-6. APPROACHES TO EFFECTIVE PATIENT CARE

Some useful suggestions for achieving behavioral change in patients include the following.

a. **Learn About Your Patient.** One complaint that many patients have is that they feel as if they are "just another body." In other words, the dentist and his staff are too impersonal. Nothing will ensure patient cooperation faster than showing some genuine concern and personal feeling for your patient.

b. **Establish the Patient's Dental Intelligence Quotient.** As discussed in the section on patient communication, it is important to know the patient's opinion of his oral health and his goals for restoring and/or maintaining his oral health. Before a patient can be motivated to use preventive dentistry techniques, he must first be aware that he has a problem and how you can help him solve it. Plaque control education without establishing a need is wasted effort.

c. **Set Short-Range Goals for Your Patient.** Long-range goals and objectives tend to discourage patients. People, in general, like immediate gratification. Don't expect people who have a very serious dental disease caused by years of neglect to change overnight. Set such goals as learning how to remove plaque successfully with disclosing agents or learning how to floss properly. People like things they can see--a pretty smile, gums that don't bleed, and so forth. Unfortunately, a healthy mouth, by itself, has not proven to be a good motivator.

d. **Praise Your Patient.** Positive reinforcement is a terrific motivator. Brag about your patient's progress, even if it may seem slower than you like. Strongly encourage the patient that is trying diligently. Remember that patients that are criticized severely at every visit tend to stop coming in for treatment.

e. **Keep It Simple.** Using long professional sounding words are only impressive to you. They mean nothing to most patients. Use language they can understand. Use training aids as needed, especially when treating small children. Everyone enjoys the "show and tell" method.

2-7. DENTAL TREATMENT PLAN

a. **DA Form 3984**. Every effort should be made to ensure that each phase of a simple or complex treatment plan is carried out in a logical, sequential order and that each step complements and reinforces other phases of treatment. The DA Form 3984, Dental Treatment Plan, may be used to record the treatment plan and to serve as a functional outline for dental treatment (see figures 2-1 and 2-2). This form must be retained as a part of the patient's dental health record until the treatment plan has been accomplished or superseded. TB MED 250 outlines the proper procedures for filling in the Dental Treatment Plan, DA Form 3984. It states that the first step in developing a treatment plan is the accomplishing and recording a thorough examination of dental, oral, and adjacent tissue. The examination should include determining and recording the status of oral hygiene. Plaque-disclosing solutions may be used, but stainable material on the tooth surfaces should not serve as the sole criteria for oral disease activity. Although the presence of plaque implies a lack of self-care, bleeding from the gingival sulcus during probing serves as a better indication of oral disease.

b. **Specific Preventive Measures.** Specific preventive measures generally included in treatment plans are:

(1) Treatment required to prevent early development of emergency conditions.

(2) Individual instruction and motivation in self-care measures.

(3) Thorough prophylaxis.

(4) Topical application of a stannous fluoride solution.

c. **Sequence of Appointments.** Success in dentistry cannot be measured in absolute terms. If, during the accomplishment of a treatment plan, a patient has difficulty in controlling plaque, counseling and instruction should be intensified, but corrective care should not be interrupted except in extreme cases. A suggested sequence of appointments is found in Appendix B.

DENTAL TREATMENT PLAN

For use of this form, see TB MED 5; proponent agency is Office of TSG.

1. CONSULTATION DESIRED [X] YES [ ] NO (If yes, complete Section III, on reverse side)

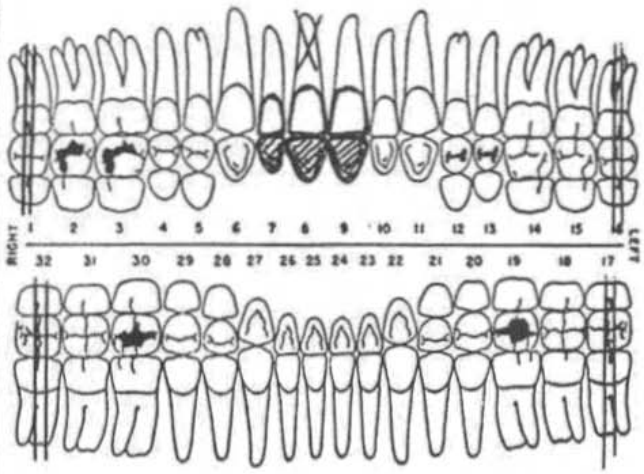
SECTION I - PLANNED TREATMENT AND SEQUENCE OF ACCOMPLISHMENT

Check items in Column c to indicate treatment planned. If sequence of treatment is other than that printed in column b, use numbers (1 thru 10) in column c to show desired order.

LINE	CODE a	TYPE TREATMENT b	PLANNED SEQUENCE c	ACCOMPLISHED d
2	A	URGENT	1	
3	B	PERIODONTAL		
4	C	PROPHYLAXIS [ ] SnF2 PASTE	2	
5	D	TOPICAL SnF2 REPEAT AFTER 6 MONTHS	4	
6	E	COUNSELING IN SELF CARE	3	
7	F	OCCLUSION		
8	G	SURGERY	6	
9	H	RESTORATIONS	5	
10	I	PROSTHESES	7	
11	J	OTHER (specify)		

CHART

Chart ONLY missing teeth and TREATMENT TO BE ACCOMPLISHED. Do NOT chart existing Pathology or Restorations.



12. REMARKS OR INSTRUCTIONS

Use this space for additional clarification of recommended treatment or for describing treatment which does not lend itself to charting. Indicate nature of treatment and teeth or other tissues involved. Identify entry by code letter (Column a, above).

A- Remove decay and place IRM #30. Reevaluate after 120 days.

H- #2, 3, 12, 13, 19 Amalgam Restorations

G- Routine Exodontia #1, 16, 17, 32 impacted.

I- Porcelain fused to metal bridge #7-9.

13. DATE	14. TREATMENT FACILITY	15. SIGNATURE OF DENTIST RECORDING TREATMENT PLAN
13 Mar 93	Happy Smile Dental Clinic	I.C. Teeth

SECTION II - PATIENT IDENTIFICATION

16. SEX	17. RACE	18. GRADE	19. ORGANIZATION
M	N	E-4	123 Line Unit

20. PATIENT'S LAST NAME - FIRST NAME - MIDDLE INITIAL	21. DATE OF BIRTH	22. IDENTIFICATION NUMBER
Kay, Minor D.	4 July 73	123-40-5678

DA FORM 1 DEC 72 3984

REPLACES DA FORM 8-276, 1 AUG 62 WHICH WILL BE USED.

Figure 2-1. DA Form 3984, Dental Treatment Plan (front side of form).

SECTION III - CONSULTATION REQUEST *(To be completed by requesting officer)*

	CONSULTATION DESIRED (Indicate by check mark(s))		REMARKS (If appropriate)
23	X	PROSTHODONTIC	Please evaluate this patient for prosthetic replacement of missing #8. Implant #8, acid etch bridge and conventional fixed bridge are all treatment possibilities.
24		PERIODONTIC	
25		ORAL SURGERY	
26		OPERATIVE	
27		CROWN AND BRIDGE	
28		OTHER (specify)	

29. SECTION IV - CONSULTANT REMARKS AND RECOMMENDATIONS
(Initial) after each entry and identify entry by number)

#23 Recommend acid etched bridge replacement of missing #8. ABC

(DA Form 3984 may be used to record the treatment plan and to serve as a functional outline for dental treatment. The purpose is to ensure that each phase of a simple or complex treatment plan is carried out in a logical, sequential order and that each step complements and reinforces other phases of treatment. DA Form 3984 is retained as a part of the Dental Health Record until accomplished or superseded. Reference: TB MED 250, Recording Dental Examination, Diagnosis and Treatments, and Appointment Control.)

☆U.S. Government Printing Office: 1982—361-646/8223

Figure 2-2. DA Form 3984, Dental Treatment Plan (reverse side of form)

Section II. PLAQUE, CALCULUS, AND STAINS

2-8. GENERAL

Basic information related to preventive dentistry is described in the paragraphs that follow. This includes tests given during oral examination, types of dental plaques, the formation of calculus, and the classification of dental stains caused by either external or internal factors.

2-9. TESTS GIVEN DURING ORAL EXAMINATION

The dental specialist generally performs and records the tests that measure gingival bleeding and plaque accumulation.

a. **Gingival Bleeding Index .** A gingival bleeding index (GBI) is a test to determine if the gingiva bleeds upon slight provocation. The technique of performing this test is very simple. Dental floss is inserted between the contact points of two teeth. The floss is wrapped around the proximal surface in a bucco-lingual manner. The floss is gently moved to the depth of the gingival sulcus. Then the floss is removed gently. Test the mesial and distal surfaces of teeth numbers 3, 8, 14, 19, 24, and 30. Use adjacent teeth if the patient is missing any of these teeth. The tested area should be observed for 15 seconds. If bleeding occurs, mark a one (1) above the area on the chart. If no bleeding occurs, mark a "0" for that area. The total of all the areas is the gingival bleeding index. Procedures for taking the GBI is found in Appendix C.

b. **Plaque Index.** The plaque index measures stained plaque accumulation on selected tooth surfaces. This parameter is a direct measure of the patient's oral hygiene effectiveness. A step-by-step explanation of the plaque index is found in Appendix C.

2-10. DENTAL PLAQUES

a. **General.** It is generally agreed that the cause of dental caries and periodontal disease is a substance called plaque. Mucin (a sticky protein material) from the saliva adheres to the surfaces of the teeth when the teeth are not properly cleaned. Food particles, dead tissue cells, and tissue fluids become trapped in the mucin, establishing an excellent medium for the growth of bacteria and other microorganisms. Once incorporated into mucin, these microorganisms are protected and are not removed by the flushing action of saliva or any fluids taken by mouth. This mucin network, with food, cellular debris, and exudate, becomes an excellent medium for the growth of microorganisms. Once the microorganisms organize in this medium, they protect themselves from the flushing and diluting action of the saliva. If the microorganisms in these plaques are disorganized or broken up or if the plaque is completely removed, then the cause of the disease is removed. Once the plaque is removed, it takes about 24 hours for the microorganisms to reform, reorganize, and resume production of damaging products.

b. **Cariogenic Plaque.** Plaque containing microorganisms which cause dental decay (caries) are called cariogenic plaque. When refined carbohydrates, such as sucrose (table sugar), are put into solution in the mouth fluids, they are able to penetrate into the plaque. Once inside the plaque, microorganisms metabolize the carbohydrates and produce an acid. This acid, held in the plaque and adhering directly against the tooth surface, starts the process of dental caries by the destruction of (demineralizing) enamel.

c. **Periogenic Plaque.** Periogenic plaque forms at or near the gingival tissue level on the tooth. It affects the periodontal structures (tissue, periodontal ligament, and bone), provoking an inflammatory response, which is seen as periodontal disease. The microorganisms do not produce damage by demineralization as in the case of cariogenic plaque. This plaque becomes mineralized to form a hard substance known as calculus. The organized microorganisms in this plaque produce toxins which first destroy the integrity of the epithelium covering the gingiva and, eventually, affect the other periodontal tissues.

2-11. CALCULUS

a. **General.** In time, calcium salts from the saliva precipitate into the periogenic plaque. This calcific accretion is called calculus. Present on the outer layer of the calculus is the periogenic plaque which continues to produce toxins that irritate and destroy the periodontal tissues. Some plaque may reach maximum mineral content in two days. Other plaque may be 50 percent calcified in two days and 60 to 90 percent calcified in 12 days. Most calculus is 70 to 90 percent inorganic, consisting mostly of calcium salts. Calculus, once hardened, can no longer be effectively removed by the patient but must be scaled away by a dental specialist, preventive dental specialist, or dentist.

b. **Supragingival Calculus.** Supragingival calculus (salivary calculus) collects on the clinical crown (tooth surfaces not covered by gingival tissue). See figure 2-3. It is a hard, calcified material removed by the preventive dental specialist during an oral prophylaxis. Supragingival calculus is usually white to creamy-white, but it may be stained darker by food, tobacco, or other material. It may be found anywhere in the mouth, especially on the lingual and proximal surfaces of mandibular anterior teeth and the facial and proximal surfaces of the maxillary first and second molars. These are common sites for calculus formation because they are near the openings of salivary ducts. Saliva is the main source of inorganic material for formation of calculus. The inorganic structure of supragingival calculus is primarily calcium phosphate (76 percent), mainly in the form of hydroxyapatite crystals (58 percent). The organic portion (10 to 30 percent) consists of dead microorganisms, epithelial cells, plaque matrix, and margin.

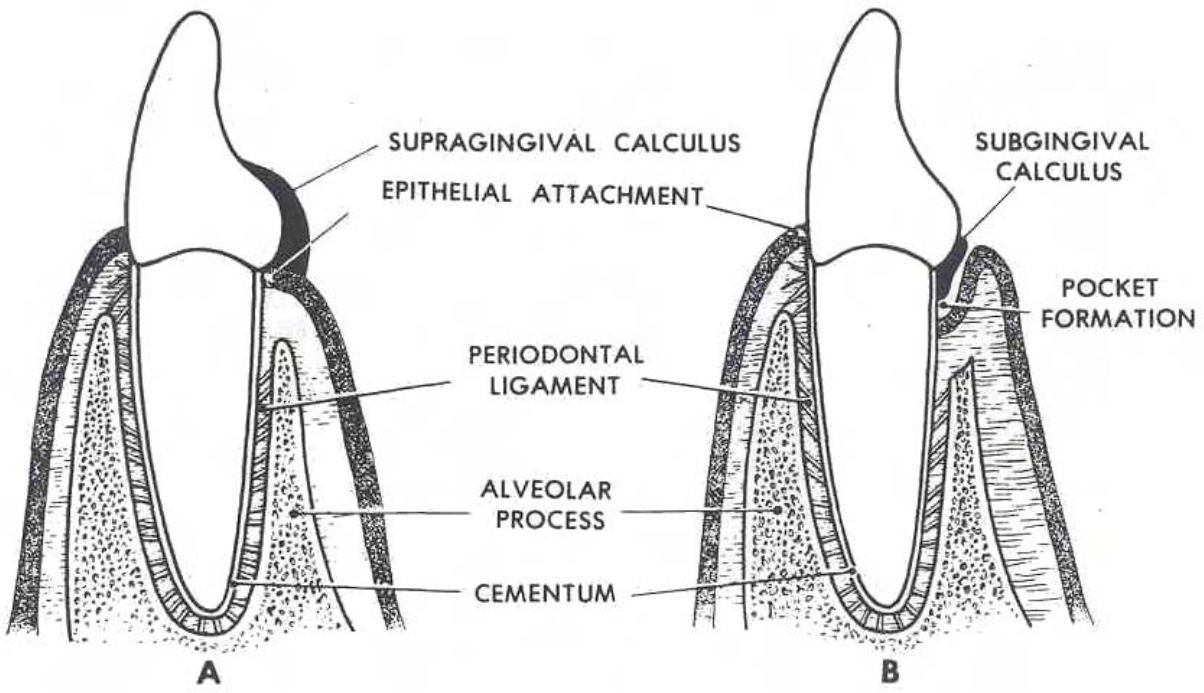


Figure 2-3. Calculus.

c. **Subgingival Calculus.** Subgingival calculus, harder and darker than supragingival calculus, is located below the crest of the marginal gingiva and is not visible upon oral examination. See figure 2-3. Subgingival calculus ranges from dark brown to greenish-black in color, is flint-like in consistency, and is firmly attached to the tooth surface. Location of subgingival calculus is determined by careful probing with an explorer or by using the air syringe. The inorganic component is primarily calcium phosphate (70 to 90 percent). The organic component (10 to 30 percent) contains no salivary protein, only serum protein.

2-12. STAINS

a. **General.** Dental stains are simply defined as pigmented deposits either on the tooth surface or within the tooth structure. Dental stains are of particular importance to the preventive dentistry specialist and the dental officer since stains may be an indicator of poor oral hygiene and destructive oral habits. Dental stains may also indicate the presence of a more serious general health problem. Much time and effort is spent removing stains from patients' teeth, primarily because they can become serious esthetic problems. Dental stains are further classified by their source and location. Classification by source is listed as either exogenous (stain that is produced outside the tooth) or endogenous (stain that is produced inside the tooth). An example of an exogenous stain is tar from tobacco smoke. An example of endogenous stain is a brown stain from too much fluoride (fluorosis) occurring inside the enamel. Stains classified by location are either extrinsic (external) or intrinsic (internal). Extrinsic stains are caused by food, chemicals, or color-producing (chromogenic) microorganisms. Intrinsic stains are caused by pulpal disease, tetracycline therapy, enamel hypoplasia, porphyria, or erythroblastosis fetalis.

b. **Extrinsic Stains.**

(1) Brown stain. Brown stain is usually caused by a bacteria-free, pigmented-acquired pellicle. This stain is found on the buccal surfaces of maxillary molars and on the lingual surfaces of mandibular incisors.

(2) Tobacco stain. Tobacco stain is generally dark brown or black in color due to coal tar combustion products. This stain is very difficult to remove and is the most common stain encountered in any dental practice.

(3) Green stain. Green stain is caused by color-producing (chromogenic) bacteria or fungi. This stain is most common in children, since it occurs primarily in the remains of the enamel cuticle of newly erupted teeth. This stain is also seen most commonly on the facial surfaces of the maxillary anterior teeth.

(4) Black stain. Black stain is also caused by chromogenic bacteria and occurs as a narrow band just above the gingival margin. It is seen in both adults and children and is easily removed.

c. **Intrinsic Stains.**

(1) Pulpal disease. This black to reddish stain is caused by the leakage of blood components (heme) into the dentinal tubules. This stain is usually removed after endodontic therapy to the tooth by the use of oxidizing agents (bleaching).

(2) Tetracycline therapy. This yellow to brown stain was more of a problem a few years ago than it is today. Tetracycline is a broad spectrum antibiotic that was used extensively in young children for many types of infections. Physicians and dentists realized several years ago the serious side effect of tooth discoloration. The amount of stain depends on the dosage and the time that the drug is administered. The stain is incorporated into the hydroxyapatite crystals of the enamel and the dentin of the forming tooth and cannot be polished out. Some limited success is attained with various vital bleaching techniques, but they are time consuming. These techniques may also damage the teeth and the results are unpredictable. Therefore, the ideal treatment is some type of restorative dentistry. Full coverage crowns are preferred, but cannot be used in children because of the risk of pulpal damage during crown preparation. Recently, many types of veneer facings and acid resin techniques have been used to correct this problem.

(3) Enamel hypoplasia. Hypoplastic enamel occurs from many causes during tooth formation and appears as pits or fissures on the enamel surface. This defect of tooth enamel is not a stain in itself, but allows for easier staining of the teeth by other agents.

(4) Porphyria. Porphyria is a metabolic disease that causes an overproduction of one of the blood-forming substances called porphyrin. Porphyrin, a brown-purple substance, has an attraction for teeth and bones. Porphyria is a rare disease and is not commonly seen in dental practice. Patients with porphyria have sores on the face and hands as well as darkly stained teeth.

(5) Erythroblastosis fetalis. This disease is a hemolytic anemia of the fetus or newborn infant that causes an excess amount of blood-forming pigment to be circulated in the blood. These pigments range from green to blue to brown and are deposited in the enamel and in the dentin of the forming teeth.

Continue with Exercises

EXERCISES, LESSON 2

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the question or best completes the incomplete statement or by writing the answer in the space provided.

After you have completed all the exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers.

1. A list of responsibilities follows. Match the duty to the person responsible for performing the action.

   a. = Dental Specialist
   b. = Preventive Dental Specialist

   (1) _____ Performs root planing and curettage.

   (2) _____ Instructs patients on basic oral hygiene care.

   (3) _____ Applies topical fluoride to the teeth.

   (4) _____ Conducts oral history interviews.

   (5) _____ Removes all tooth deposits.

   (6) _____ Applies pit and fissure sealants.

   (7) _____ Performs and records plaque and gingival bleeding indices.

   (8) _____Instructs in preventive dentistry.

2. Complete the following statements related to patient motivation.

   a. Learning to be a good _____ is essential.

   b. The goal in a preventive dentistry education program is to _____ the patient that the new oral health_____ are beneficial.

3. List two common barriers to effecive two-way communication with patients.

   a. _____

   b. _____

4. Complete each sentence of the following list of approaches to effective patient care.

   a. _____ about your patient.

   b. Establish the patient's dental _____.

   c. Set _____ goals for your patient.

   d. _____ your patient.

   e. Keep it _____.

5. What official form is used to serve as a functional outline for dental treatment?

   The ___Form _____, _____ _____ Plan.

6. Use Appendix B for this exercise. Match the action in Column I to the suggested appointment sequence in Column II. Items in Column II may be used more than once. Actions in Colulmn I may require more than one response.

		COLUMN I	COLUMN II
(1)	___	Show improvement on bleeding index and plaque index.	a. First appointment
(2)	___	Evaluate brushing and flossing techniques.	b. Second appointment
(3)	___	Recommend specific home-care therapy.	c. Third appointment
(4)	___	Have patient floss, again emphasizing speed.	d. Fourth appointment
(5)	___	Record appropriate remarks.	

7. For the GBI, floss is wrapped around the proximal surface of the tooth in a bucco-lingual manner and the depth of gingival sulcus is measured.

   a. List the numbers of the teeth tested.

   _____

   b. List the two surfaces tested.

   _____

   c. State how long you must wait after flossing before scoring.

   _____

   d. List the maximum GBI.

   _____

8. For the plaque index, a patient's teeth are stained with a disclosing tablet.

   a. Write the numbers of the teeth on which scoring is done on the facial surfaces.

   _____

   b. Write the numbers of the teeth on which scoring is done on the lingual surfaces.

   _____

   c. The maximum score for any one tooth is _____.

9. Match the description in Column I to the term in Column II.

COLUMN I	**COLUMN II**
(1) _____Produces an acid and demineralizes enamel.	a. Mucin.
(2) _____Forms at or near the gingival tissue level.	b. Mucin network.
(3) _____A sticky protein material.	c. Cariogenic plaque.
(4) _____Includes food particles, cellular debris, exudate.	d. Periogenic plaque.

10. Most calculus consists mostly of _____ _____from saliva precipitate.

11. How many days does it take plaque to become calcified (reach maximum mineral content)? _____

12. Match the following list of characteristics to the type of calculus.

    a. Supragingival calculus.
    b. Subgingival calculus.

    (1) ____ Collects on the clinical crown.

    (2) ____ Below the crest of the marginal gingiva.

    (3) ____ Dark-brown to greenish black in color.

    (4) ____ Usually white to creamy-white.

    (5) ____ Near salivary opening.

    (6) ____ Has serum protein.

    (7) ____ Flintlike in consistency.

    (8) ____ Especially on the lingual and proximal surfaces of mandibular anterior teeth.

    (9) ____ Especially on the facial and proximal surfaces of the maxillary first and second molars.

13. Which dental stain is the most common stain?

    a. Pulpal disease.

    b. Enamel hypoplasia.

    c. Black stain.

    d. Erythroblastosis fetalis.

    e. Tobacco stain.

14. Select the exogenous stain.

    a. Pulpal disease.

    b. Enamel hypoplasia.

    c. Tobacco tar.

    d. Porphyria.

    e. Tetracycline therapy.

15. Select the endogenous stain.

    a. Green stain.

    b. Fluorosis.

    c. Brown stain.

16. Which stain is found on the buccal surfaces of maxillary molars and on the lingual surfaces of mandibular incisors?

    a. Brown stain.

    b. Enamel hypoplasia.

    c. Green stain.

    d. Fluorosis.

    e. Black stain.

17. Which stain is seen most commonly on the facial surfaces of the maxillary anterior teeth?

    a. Brown stain.

    b. Enamel hypoplasia.

    c. Black stain.

    d. Fluorosis.

    e. Green stain.

18. Which stain is the result of hemolytic anemia causing an excess amount of blood-forming pigment to be circulated in the blood?

    a. Pulpal disease.

    b. Porphyria.

    c. Black stain.

    d. Erythroblastosis fetalis.

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES, LESSON 2

1. (1) b (para 2-3a(2))
   (2) a (para 2-2a(2))
   (3) b (para 2-3a(3))
   (4) a (para 2-2a(1))
   (5) b (para 2-3a(1))
   (6) b (para 2-3a(6))
   (7) a (para 2-2a(3))
   (8) b (para 2-3a(4))

2. a. listener
   b. convince; habits (para 2-4)

3. a. Fear.
   b. Inactivity. (para 2-5)

4. a. Learn
   b. IQ
   c. short-range
   d. Praise
   e. simple (para 2-6)

5. DA Form 3984, Dental Treatment Plan (para 2-7a)

6. (1) c
   (2) b
   (3) a
   (4) d
   (5) b,c,d (Appendix B)

7. a. numbers 3, 8, 14, 19, 24, and 30
   b. mesial, distal
   c. 15 seconds
   d. 12 (para 2-9a; Appendix C)

8. a. numbers 3, 8, 14, and 24
   b. numbers 19, and 30
   c. 3 (para 2-9b; Appendix C)

9. (1) c
   (2) d
   (3) a
   (4) b (para 2-10)

10. Calcium salts (para 2-11a)

11. 2 to 12 days. (para 2-11a)

12. (1) a
(2) b
(3) b
(4) a
(5) a
(6) b
(7) b
(8) a
(9) a (paras 2-11b, c)

13. e (para 2-12b(2))

14. c (para 2-12a)

15. b (para 2-12a)

16. a (para 2-12b(1))

17. e (para 2-12b(3))

18. d (para 2-12c(5))6

End of Lesson 2

LESSON ASSIGNMENT

LESSON 3	Oral Prophylaxis.
TEXT ASSIGNMENT	Paragraph 3-1 through 3-21.
LESSON OBJECTIVES	After completing this lesson, you should be able to:

3-1. Identify what oral prophylaxis is.

3-2. Identify a typical setup of instruments and materials used to scale and polish teeth.

3-3. Identify detection instruments and scaling instruments.

3-4. Identify information related to dental prophylaxis equipment, especially the ultrasonic dental unit.

3-5. Identify methods of grasping a scaling instrument.

3-6. Identify preventive dental specialist positions and finger rests used in scaling each of ten tooth surfaces.

3-7. Identify information related to polishing.

3-8. Identify the ways that fluorides are applied.

3-9. Identify topical fluoride solutions.

3-10. Identify information related to occlusal sealants and prophylaxis paste.

SUGGESTION After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 3

ORAL PROPHYLAXIS

Section I. INSTRUMENTS AND EQUIPMENT

3-1. GENERAL

In its broadest sense, the term "oral prophylaxis" encompasses all procedures done in the mouth contributing to oral and dental health through prevention of disease. As used in dentistry, the term refers to scaling and polishing procedures which remove calculus, other deposits, and stains from the teeth. To perform scaling and polishing procedures properly, the preventive dentistry specialist must understand dental and periodontal tissues and how they react to various irritations and treatments. The PDS must be familiar with the appearance and texture of normal oral tissue and be able to recognize disease. He must be observant and call attention to any condition not recorded, but which should be examined by the dental officer. The PDS must also be thoroughly familiar with the instruments and techniques of instrumentation in performing scaling and polishing procedures. A good oral prophylaxis is one in which the teeth have been scaled and polished with the least trauma to tissues and restorations and the least discomfort to the patient. Furthermore, topical fluoride solutions should be applied to the teeth of all patients unless contraindicated.

3-2. PREOPERATIVE PREPARATIONS

The preventive dental specialist follows standard procedures in preparing for and handling of patients. Personal cleanliness, cleanliness and orderliness of the treatment room, sterilization of instruments, maintenance records, appointment scheduling, care and maintenance of equipment, and consideration and courtesy in handling patients are all important to the successful functioning of the oral hygiene service. Before each new patient is admitted to the treatment room, all evidence of treatment of the previous patient should be removed, used instruments and materials cleaned and placed in the sterilizer or put away, soiled linens and paper covers replaced, instrument setups for the next patient prepared, and the dental chair lowered and adjusted for easy access by the patient. After the patient has been seated, the chair adjusted, and the protective towel put in place, the PDS should wash and dry his hands in full view of the patient before beginning any procedure.

3-3. INSTRUMENTS AND MATERIALS

a. **Typical Instrument Setup.** A typical setup of instruments and materials used to scale and polish teeth is shown in figure 3-1. (Notice that gloves, a face mask, and protective glasses are included. The PDS is expected to put them on before using any of the instruments.) A toothbrush and a model set of teeth are used to demonstrate correct toothbrushing methods.

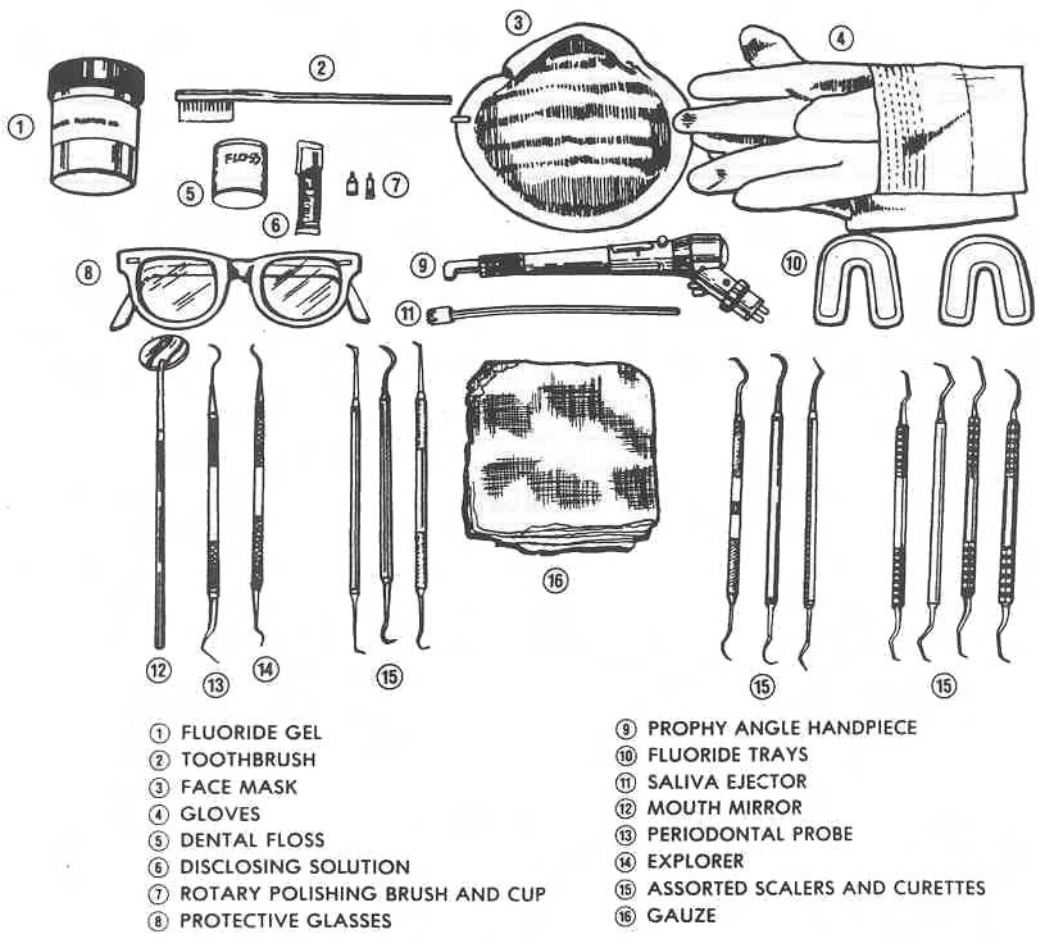


Figure 3-1. Instruments and materials for oral prophylaxis.

b. **Parts of an Instrument.** Instruments used in scaling have three common parts (see figure 3-2). The handle is used for holding the instrument. The shank connects the handle to the working end. The working end does the actual work of the instrument. The working end is divided into the face, lateral sides, back, and tip.

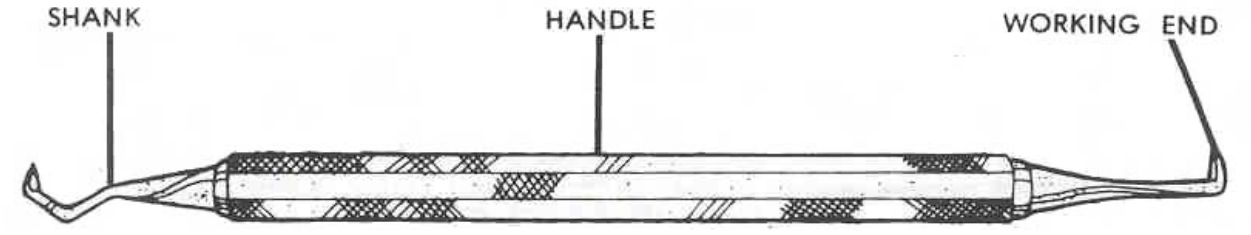


Figure 3-2. Parts of an instrument.

3-4. DETECTION INSTRUMENTS

Instruments designed for detecting tooth irregularities are essential for scaling procedures.

a. **Mirror.** A mirror is used to obtain better vision of oral structures and for tissue retraction, both of which will allow for a more proficient examination of oral tissue and detection of supragingival deposits.

b. **Explorer.** Explorers are manufactured in various shapes and sizes. Selection is based on need in a particular situation. Explorers are used to detect calculus, caries, abnormalities and irregularities of teeth and to examine contours of restorations.

c. **Periodontal Probe.** The periodontal probe is an instrument of evaluation and is never used to remove or dislodge dental deposits. Its primary use is for measurement of sulcus and pocket depths.

3-5. SCALING INSTRUMENTS

Instruments designed to remove calculus are called scalers. Several different scaling instruments are designed to reach the various surfaces of the teeth during calculus removal. A variety of scalers are available as standard medical supply items for dental use.

a. **Sickle Scalers.** Sickle scalers are used to remove supragingival calculus. Sickle scalers are useful for gross calculus removal slightly below the gingival margin and when the tissue is flexible enough to permit easy insertion of the instrument. Sickle scalers can produce undue trauma, are not easily adapted to curved surfaces, and can decrease tactile sensitivity. Commonly used sickle scalers (figure 3-3) are listed below.

(1) Sickle Scaler U 15-33.

(2) Sickle Scaler Jaquette 34-35.

(3) Jacquette 21S-33.

(4) McCall's 13S-14S

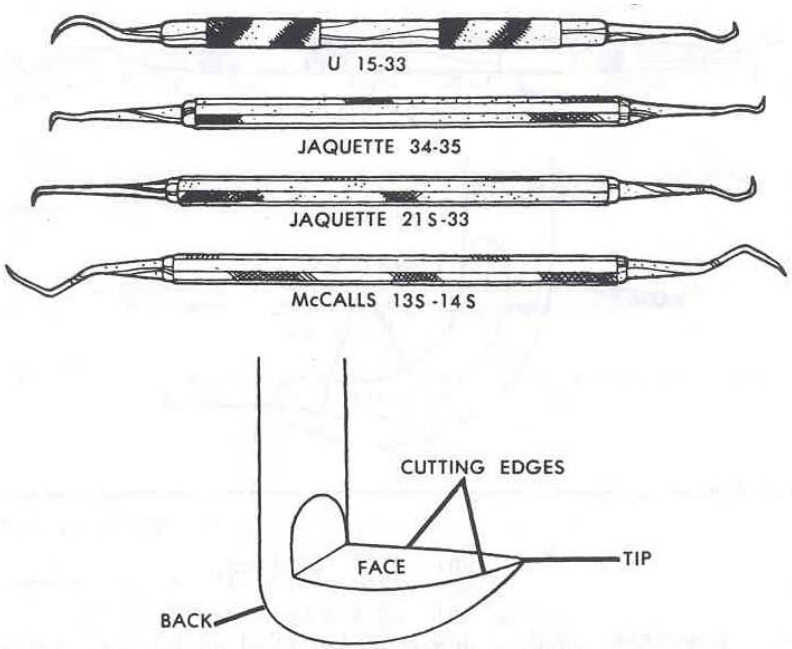


Figure 3-3. Sickle scalers.

b. **Universal Curettes**. Universal curettes are used in all areas of the mouth. These instruments are characterized by their curved blade which makes adaptation to the tooth surface much easier. Commonly used universal curettes (figure 3-4) are listed below.

(1) Younger-Good 7-8.

(2) Colombia 13-14.

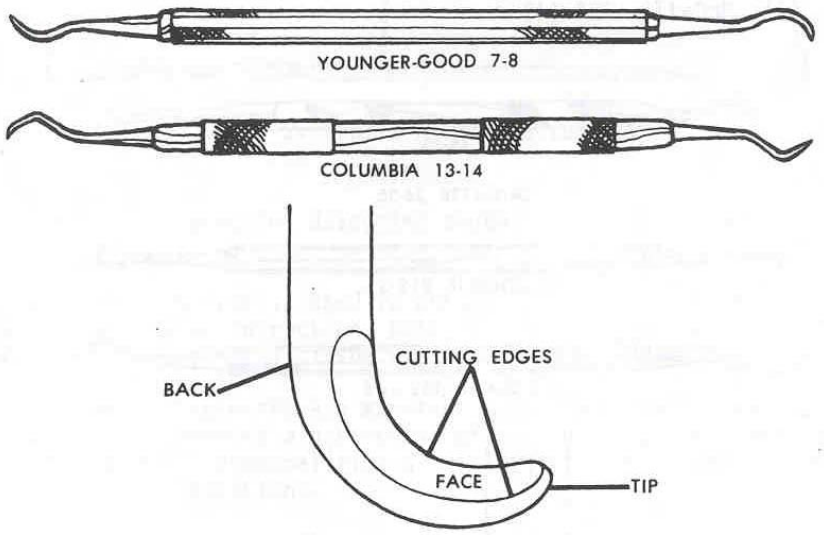


Figure 3-4. Universal curettes.

c. **Gracey Curettes.** Gracey curettes are used to remove subgingival calculus deposits. The shape of the blade makes subgingival adaptation possible without trauma to the adjacent tissue. Each instrument in this series (see figure 3-5) is designed for a specific region of the mouth.

(1) Gracey 1-2--Anterior teeth, and facial, lingual, mesial, and distal surfaces of all teeth.

(2) Gracey 7-8--Anterior teeth, plus facial, lingual, mesial, and distal surfaces of bicuspids.

(3) Gracey 11-12--Primarily for mesial surfaces of posterior teeth.

(4) Gracey 13-14--Primarily for distal surfaces of posterior teeth.

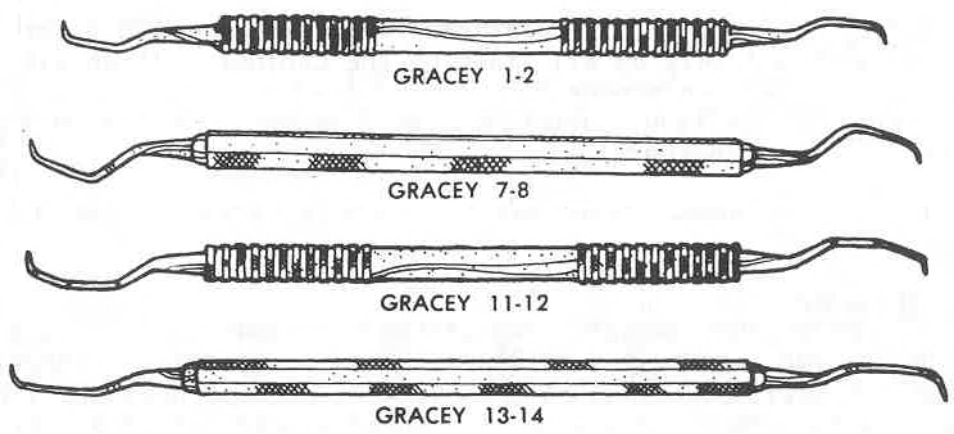


Figure 3-5. Gracey curettes.

3-6. ULTRASONIC DENTAL UNIT

a. **General.** The ultrasonic dental unit is widely used to perform oral prophylaxis treatments. See figure 3-6. The unit works by converting alternating current into 25,000-cycle current. The unit handpiece converts electrical power supplied by the unit's generator into 25,000 microscopically small mechanical strokes. These strokes are transmitted to the insert tip. A continuous flow of water is required to cool the handpiece. The same water, warmed inside the handpiece, is delivered through the nozzle and sprayed at the activated tip. Using a very light guided touch, the activated tip with the bubbling action of the water rapidly dislodges calculus and stain.

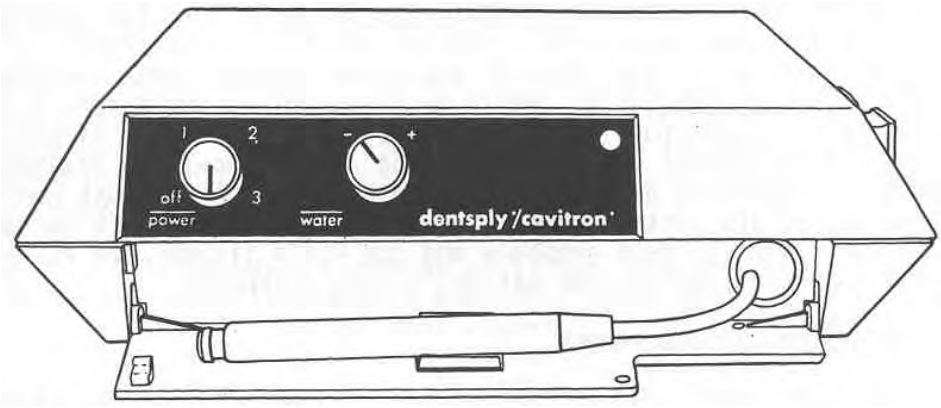


Figure 3-6. Ultrasonic dental unit.

b. **Operation.** The ultrasonic unit should be operated according to the manufacturer's instructions. The technique to be used in performing an oral prophylaxis with ultrasonic equipment is similar to that for hand scaling instruments. Two exceptions are that application must be in a continuous wet field and that the insert tip must be kept moving constantly to avoid damage to tooth structure. The various insert tips available for use in the ultrasonic unit are shown in figure 3-7. (Insert tips need not be sharp to perform effectively.) All of these tips have a specific use, but the P10 is the tip most commonly employed. For repair or service, users should request assistance of the medical equipment repairman.

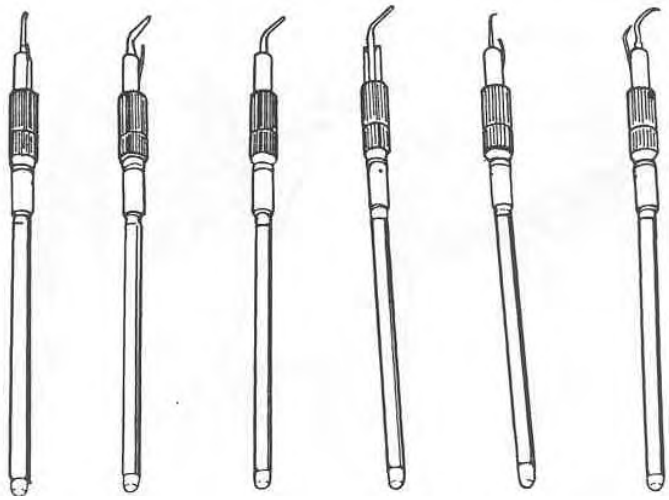


Figure 3-7. Handpiece and insert tips for ultrasonic dental unit.

c. **Precautions.** Although the unit requires no special maintenance, the following precautions should be observed.

(1) Heat damage. The unit should not be placed on or next to a radiator or other heat source. Heat may damage its electronic components.

(2) Air circulation. The unit should be placed where a normal amount of air circulates freely on all sides of the cabinet. It should not be in a tightly confined space or corner.

(3) Careful handling. The unit should be handled carefully when carried from one place to another.

(4) Warning. The unit must not be used on patients with cardiac pacemakers. The high frequency level may interfere with the rhythm of the pacemaker.

3-7. OTHER EQUIPMENT

a. **Dental Unit Sonic Scaler.** The dental unit sonic scaler fits all standard 2-line, 3-line, and 4-line couplers. The sonic scaler is handled like a slow-speed handpiece. It is more convenient because no water lines or other unit is needed. The sonic scaler is gradually replacing the ultrasonic units and will be incorporated into the dental field equipment.

b. **Air Polishing Prophylaxis Unit (Prophy Jet).** This instrument may be used to remove stains. Because of the sensitivity of teeth and gingiva to air pressure, this instrument should only be used by a preventive dentistry specialist who is trained in its usage.

Section II. PROPHYLAXIS PROCEDURE

3-8. GRASPING AND USING SCALING INSTRUMENTS

a. **Control of Instrument.** In the hands of an inexperienced preventive dentistry specialist, a scaling instrument can be very harmful to hard and soft tissues as well as dental restorations. Removing calculus without damaging the tissues requires knowledge of dental anatomy and of the nature and relationship of gingival attachment to the tooth. It also requires complete control of the instrument during the placement and scaling stroke. In placing and withdrawing the instrument, the PDS must keep the scaling edge in contact with the hard structures. The contact of the instrument to a tooth should be firm, but not so firm that it gouges or damages tooth structure or restorations. The scaling stroke should be directed away from soft tissue wherever possible and not permitted to slip or veer. The range of movement of the blade of the instrument during the scaling stroke should be limited to that required for removing deposits. This means that the PDS must have positive control of the instrument all the time. This control is possible only if the instrument is held properly and the PDS's fingers are firmly anchored and supported against the patient's jaws or teeth.

b. **Grasping the Instrument.**

(1) Pen grasp and modified pen grasp. Two methods of grasping a scaling instrument afford control during the scaling stroke (see figure 3-8). The two methods are the pen grasp and the modified pen grasp in which the thumb, index finger, and middle finger hold the instrument. In using either grasp, the PDS should hold the instrument well up on the working edge of the handle, supporting the fingers against the teeth and using them as fulcrums during the scaling stroke. With the pen grasp, the two last fingers are used as the fulcrum. Additional control may be gained by bringing fingers of the other hand into play to help guide or support the instrument.

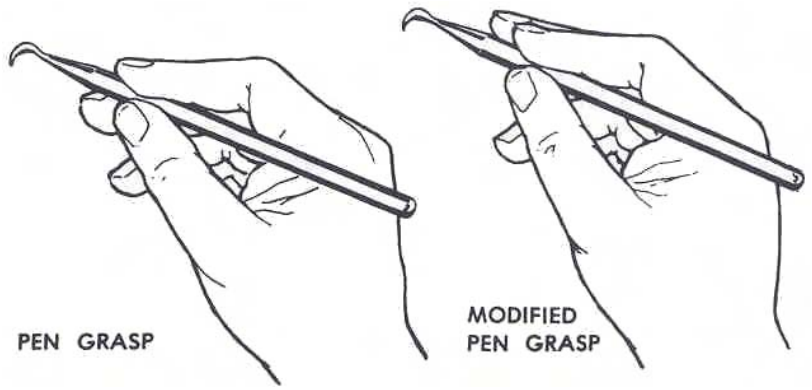


Figure 3-8. Methods of grasping scaling instruments.

(2) The palm grasp. Another method, the palm grasp, used with the Porte Polisher, air, water syringe, and other such instruments is accomplished by holding the instrument with the index, middle, ring, and little finger so it rests in the palm of the hand. The thumb remains free to stabilize the hand in the patient's mouth.

c. **Scaling Motions.** A standard scaling instrument is used by sliding it over the surface of the tooth and calculus to the base of the deposit. Then, the instrument is pulled toward the occlusal or incisal surface, maintaining firm contact with the tooth surface and flaking or scraping off calculus ahead of it.

d**. Tactile Sense.** In working on lingual and proximal surfaces, the PDS often cannot see well enough to determine the presence and the extent of calculus. In this case, the PDS must depend upon his tactile sense, which is the feel transmitted to the fingers by the instrument. The experienced PDS will be able to detect calculus and remove it even though he cannot see it. An explorer is excellent for determining the presence of small areas of calculus not detectable by the bulkier scalers and for checking if there is any calculus left on the teeth (see figure 3-9).

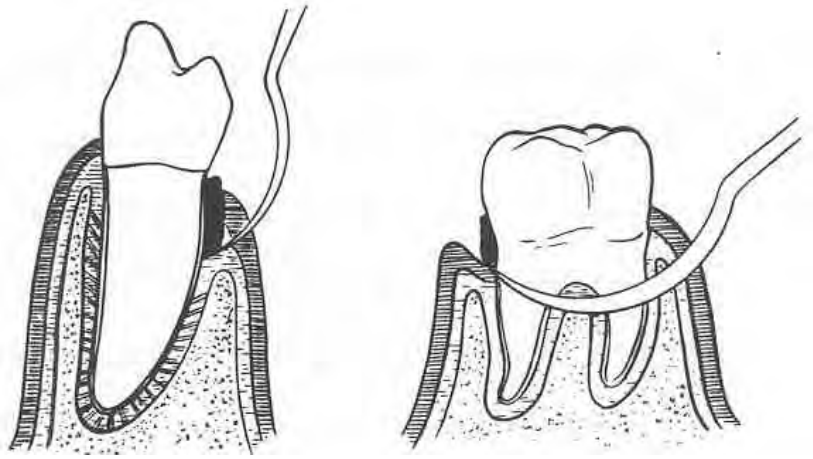


Figure 3-9. Detection of subgingival calculus with point of explorer.

3-9. GUIDANCE IN THE USE OF SCALING INSTRUMENTS

a. **Grasp.** The most common grasp used in holding a dental instrument is the modified pen grasp. The modified pen grasp should be accomplished in the following manner.

(1) Thumb and forefinger hold the instrument with finger pads contacting instrument.

(2) Thumb and forefinger should be opposite each other at or near the junction of the shank and handle.

(3) Pad of the middle finger should be placed on the shank.

(4) Ring finger remains free to establish fulcrum.

(5) Use a light relaxed grasp.

b. **Finger Rest.** Establishing a finger rest is a major factor in maintaining instrument stability during scaling procedures. An effective finger rest should meet the following criteria:

(1) Place the finger rest using the pad of the ring finger.

(2) Establish finger rest as close to the working area as possible.

(a) Should be on the same arch.

(b) Should be close to the tooth being worked on.

c. **Required Set 0f Motions.** To obtain maximum strength and control from scaling strokes, a specific set of motions are performed to activate the blade of the instrument.

(1) Grasp the instrument using a modified pen grasp.

(2) Establish a finger rest on an adjacent tooth.

(3) Rotate your wrist as you would in turning a door knob.

(4) Wrist and arm are used for strength, not the fingers.

d. **The Scaling Process.** Let's go back now and put the steps of the scaling process together.

(1) Pick up the instrument and hold it using the modified pen grasp.

(2) Practice rolling the instrument between the thumb and forefinger.

(3) Select the tooth to be scaled and establish a finger rest.

(4) Place the tip of the instrument beneath the deposit to be scaled. Be sure the tip of the instrument remains in contact with the tooth surface at all times.

(5) Tighten grasp slightly and apply lateral pressure against the tooth surface with the cutting edge.

(6) Activate the instrument using rotary motion activation. Move the instrument in a coronal direction, always leading with the tip.

(7) As deposits are removed, readapt the instrument and reactivate.

3-10. SCALING SEQUENCES

In scaling and polishing a patient's teeth, the PDS should follow a sequence of steps. This sequence of steps will enable the PDS to know what sections of the mouth have been scaled and polished. This sequence will also prevent overlooking the scaling or polishing of any teeth and unintentional rescaling or repolishing of teeth. One sequence often used is to work in the same order that teeth are numbered. For example, the first surfaces scaled are the facial and proximal surfaces of the maxillary right posterior teeth, beginning with the third molar (tooth number one). This is followed by the lingual surfaces of the same teeth. Then, the maxillary anterior, the maxillary left posterior, the mandibular left posterior, the mandibular anterior, and the mandibular right posterior teeth are done in turn. In each group, scaling of the facial and proximal surfaces is followed by scaling of the lingual surfaces. When scaling is completed, the teeth are polished in the same sequence.

3-11. SCALING THE TEETH

In scaling the facial, proximal, and lingual surfaces of each segment of the dental arches, certain instruments and positional relationships of the PDS to the patient are more convenient than others. Some procedures can be done better with a mouth mirror. In any case, the chair should be adjusted so that the patient's head is at a convenient working height (generally between the PDS's elbows and shoulders). The patient should be comfortable. All areas of the mouth should be easily accessible for effective work to be done. Adjusting the operating lamp for good working visibility, maintaining a neatly arranged bracket table, and keeping instruments wiped free of debris are also conducive to efficient work performance. An excellent time to instruct the patient in proper toothbrushing and other self-care practices is just before beginning the prophylaxis. With the use of disclosing solution and a hand mirror, areas needing attention can be pointed out. Scaling procedures are then carried out as discussed below using instruments convenient to each area. With experience, the PDS will find that certain instruments become favorites while others are seldom used.

3-12. PREVENTIVE DENTAL SPECIALIST POSITIONS USED FOR SCALING

The working positions used by the PDS for scaling and polishing are identified in relation to the patient, usually using the concept of a 12-hour clock face. See figures 3-10 and 3-11. A right-handed PDS generally uses the 9 o'clock position to scale posterior teeth; a left-handed PDS uses the 3 o'clock position. A right-handed PDS uses the 8 o'clock position to scale tooth surface sides toward the PDS; a left-handed PDS uses the 4 o'clock position. Both right-handed and left-handed PDS's use the 12 o'clock position to scale tooth surface sides away from the PDS. Appendix D provides a chart outlining suggested PDS positions and finger rests used in scaling, from a right-handed perspective.

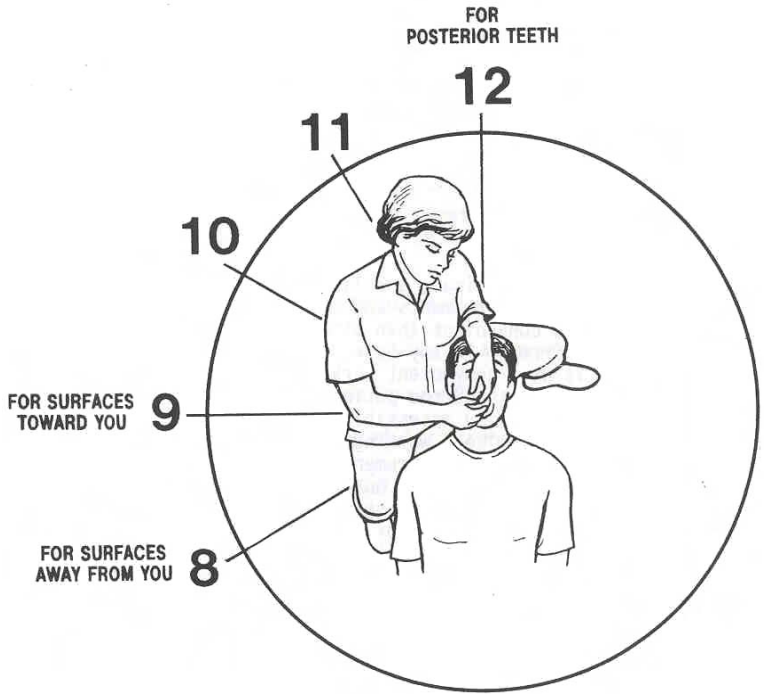


Figure 3-10. Preventive dental specialist positions used in scaling and polishing (right-handed perspective).

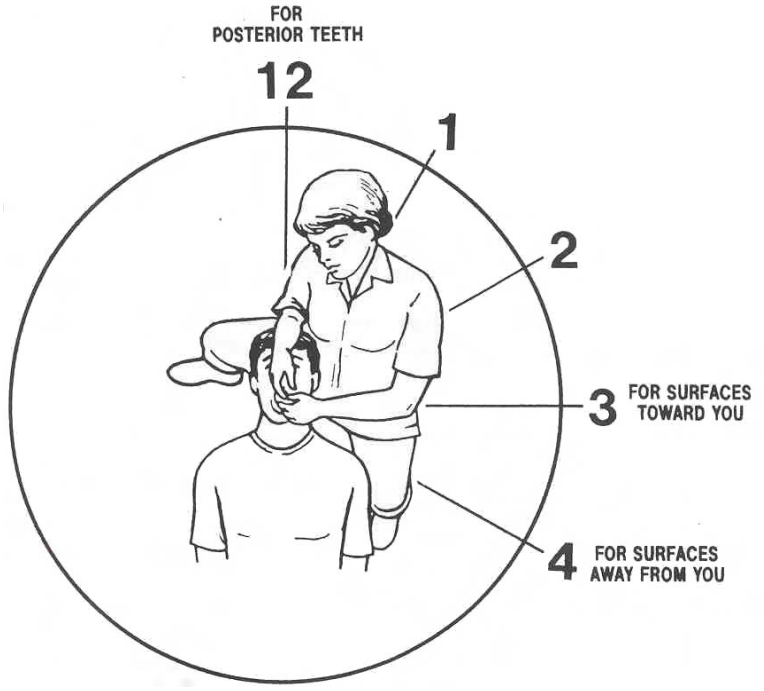


Figure 3-11. Preventive dental specialist positions used in scaling and polishing (left-handed perspective).

3-13. SEQUENCE OF PROCEDURE

a. **Maxillary Right Posterior.** In scaling the facial and proximal surfaces of maxillary right posterior teeth, the PDS is usually at the 9 o'clock position in relation to the patient. See figure 3-12. The fingers rest on the lingual surfaces of these teeth. In scaling the lingual surfaces of the maxillary right posterior teeth, the PDS is to the right of the patient at the 9 o'clock position, and uses a mouth mirror for light and vision. The fingers rest on the occlusal surfaces of adjacent teeth.

b. **Maxillary Anterior.** For the maxillary anterior teeth, the PDS is behind the patient at the l2 o'clock position, when scaling the facial, proximal, and lingual surfaces, sides away from the PDS. See figure 3-13. The PDS is at the 8 o'clock position to the patient, when scaling the facial, proximal, and lingual surfaces, sides toward the PDS. See figure 3-14. The fingers rest on the linguoincisal edges of adjacent teeth. In scaling the lingual surfaces, the PDS needs to use a mouth mirror for light and vision.

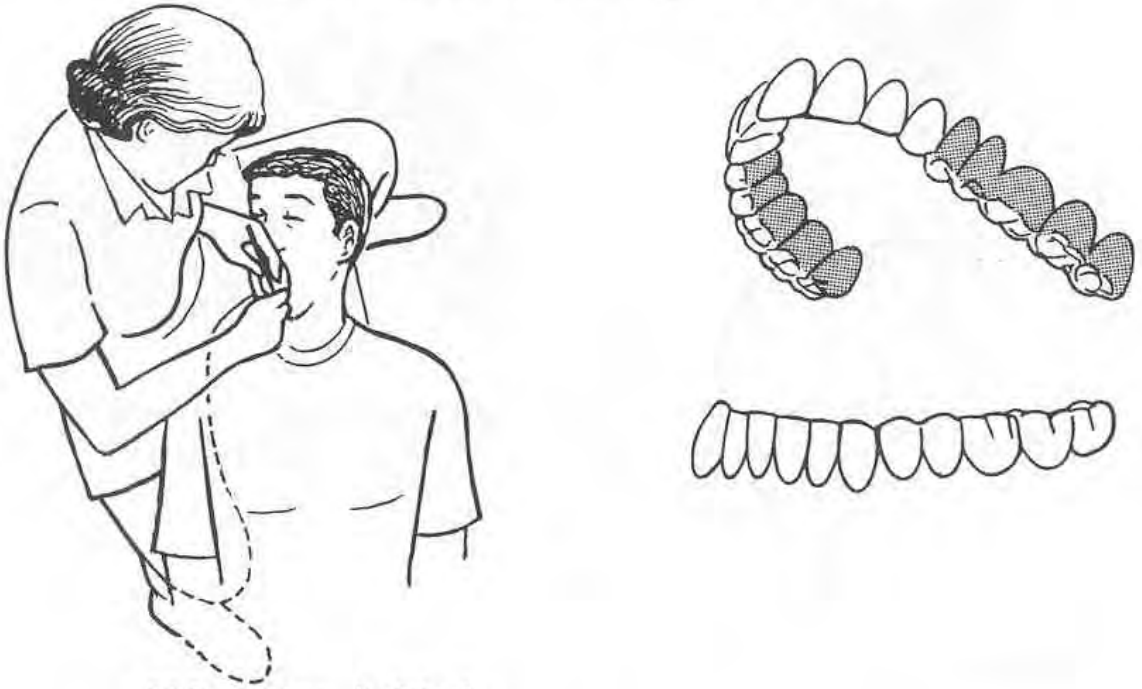
c. **Maxillary Left Posterior.** In scaling the facial and proximal surfaces of maxillary left posterior teeth, the PDS is usually at the 9 o'clock position in relation to the patient. See figure 3-12. The fingers rest on the occlusal surfaces of these teeth. In scaling the lingual surfaces of these teeth, the PDS is to the right of the patient at the 9 o'clock position, and uses a mouth mirror. The fingers rest on the facial or occlusal surfaces of the maxillary teeth.

d. **Mandibular Left Posterior.** In scaling the facial, lingual, and proximal surfaces of mandibular posterior teeth, the PDS is usually to the right of the patient at the 9 o'clock position. See figure 3-15. The fingers rest on the occlusal surfaces of adjacent teeth. In scaling the lingual surfaces of these teeth, the PDS is usually at the 9 o'clock position. The fingers rest on the occlusal surfaces of these teeth. A mouth mirror is needed for tongue retraction, but not for light and vision.

e. **Mandibular Anterior.** For the mandibular anterior teeth, the PDS is behind the patient at the 12 o'clock position, when scaling the facial, proximal, and lingual surfaces, sides away from the PDS. See figure 3-16. The fingers rest on the facial surfaces of these teeth. The PDS is to the right of the patient at the 8 o'clock position, when scaling the facial, proximal, and lingual surfaces, sides toward the PDS. See figure 3-17. The fingers rest on the lingual surfaces of these teeth. In scaling the lingual surfaces, the PDS needs to use a mouth mirror for light and vision.

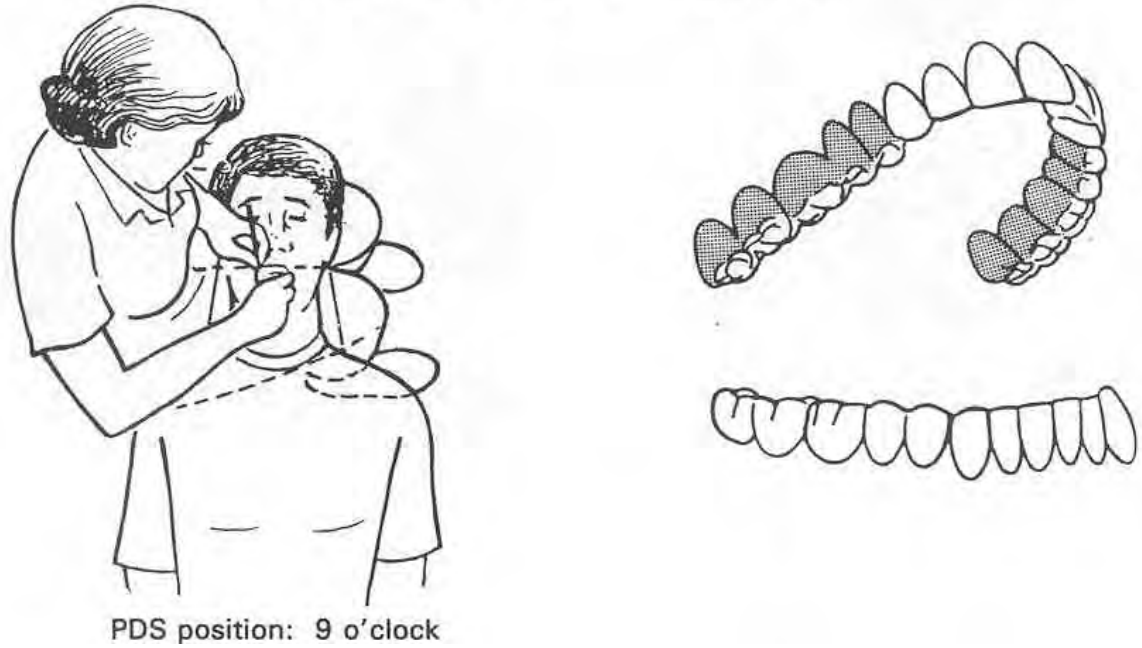
f. **Mandibular Right Posterior.** In scaling the facial, proximal, and lingual surfaces of mandibular right posterior teeth, the PDS is at the 9 o'clock position to the right of the patient. See figure 3-15. The fingers rest on the occlusal surfaces of these teeth. In scaling the lingual surfaces, the PDS needs to use a mouth mirror.

Maxillary Left Posterior Teeth, Facial and Proximal Surfaces
Maxillary Right Posterior Teeth, Lingual Surfaces



PDS position: 9 o'clock

Maxillary Right Posterior Teeth, Facial and Proximal Surfaces
Maxillary Left Posterior Teeth, Lingual Surfaces



PDS position: 9 o'clock

Figure 3-12. Positioning for maxillary posterior teeth.

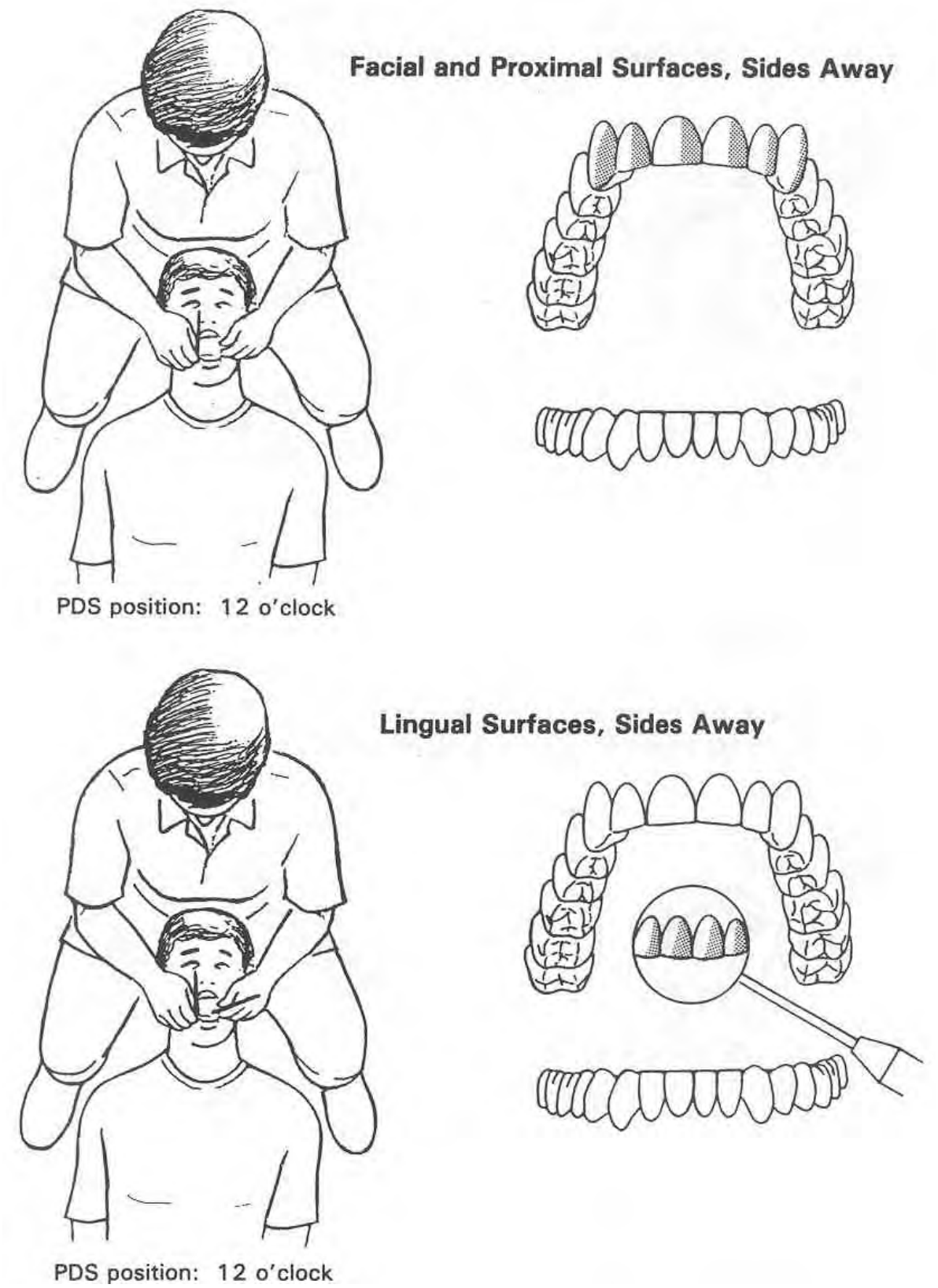
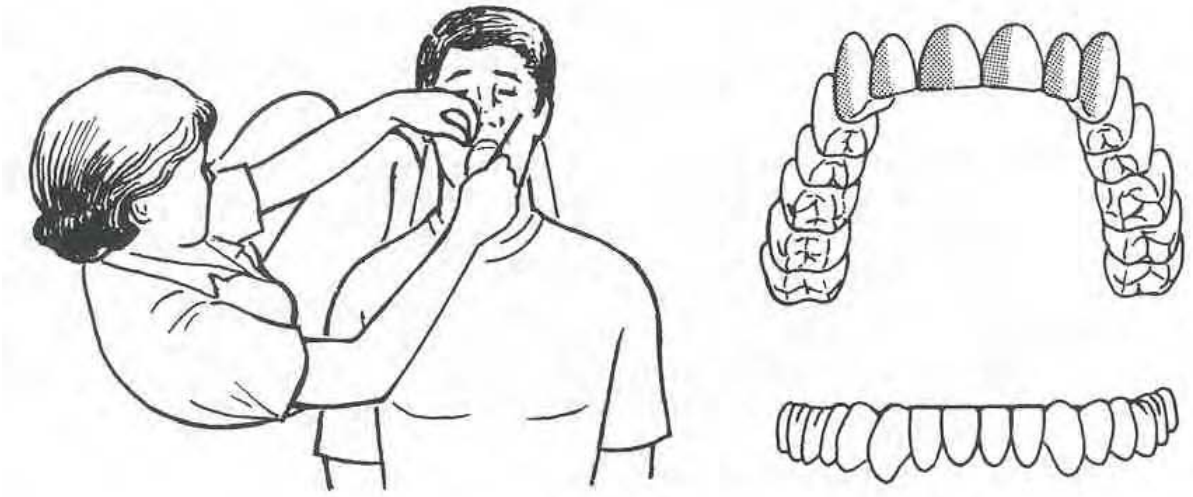


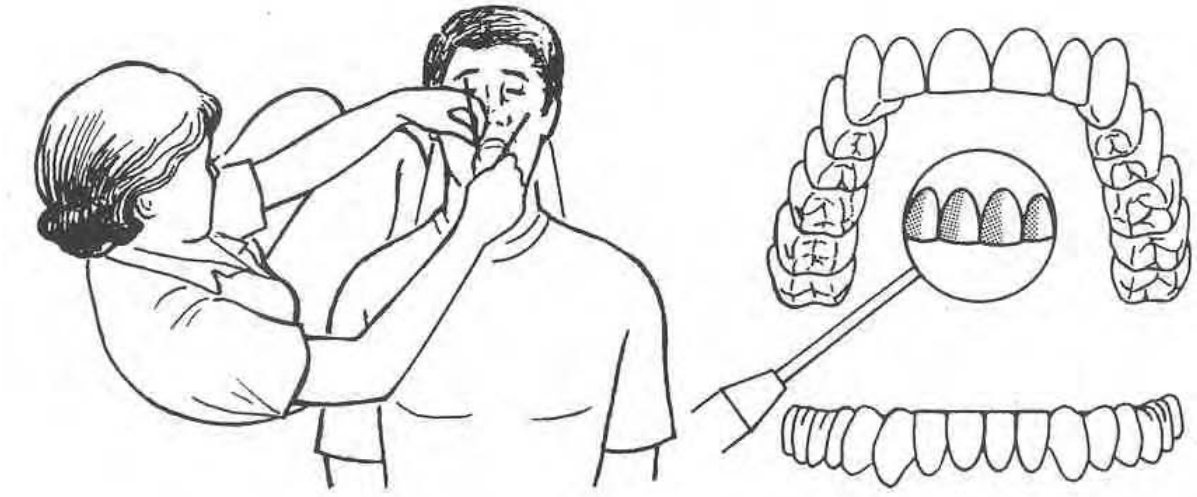
Figure 3-13. Positioning for maxillary anterior teeth, sides away from the PDS.

Facial and Proximal Surfaces, Sides Toward



PDS position: 8 o'clock

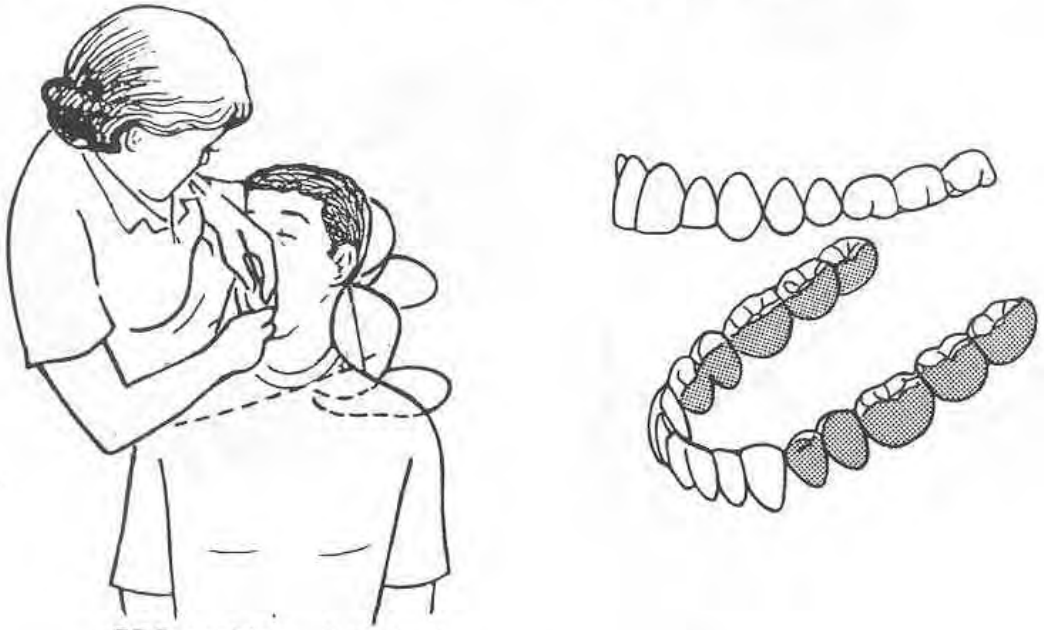
Lingual Surfaces, Sides Toward



PDS position: 8 o'clock

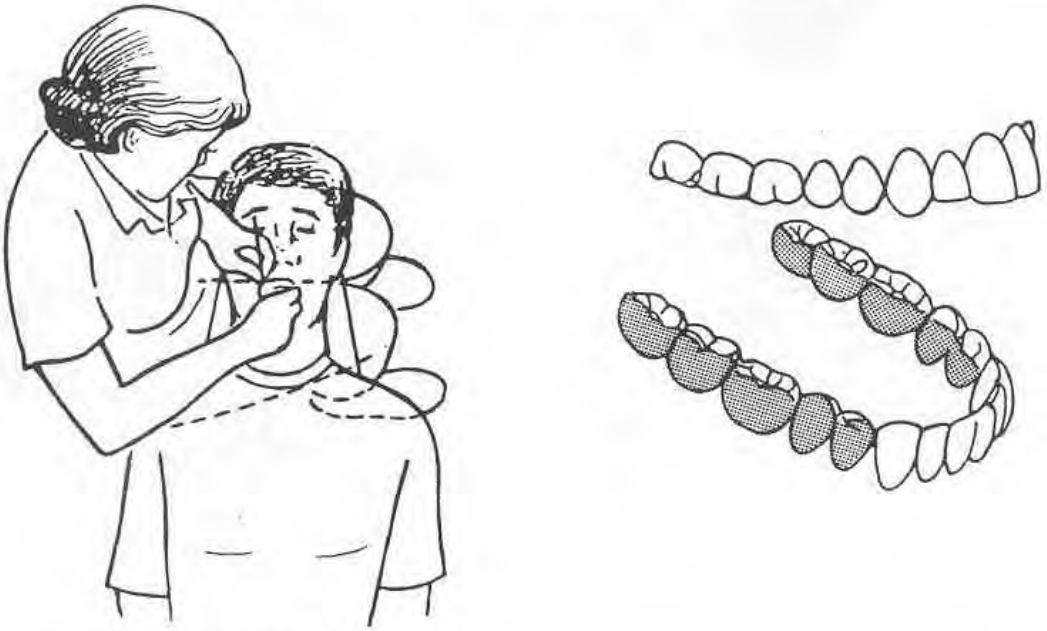
Figure 3-14. Positioning for maxillary anterior teeth, sides toward the PDS.

Mandibular Left Posterior Teeth, Facial and Proximal Surfaces
Mandibular Right Posterior Teeth, Lingual Surfaces



PDS position: 9 o'clock

Mandibular Right Posterior Teeth, Facial and Proximal Surfaces
Mandibular Left Posterior Teeth, Lingual Surfaces



PDS position: 9 o'clock

Figure 3-15. Positioning for mandibular posterior teeth.

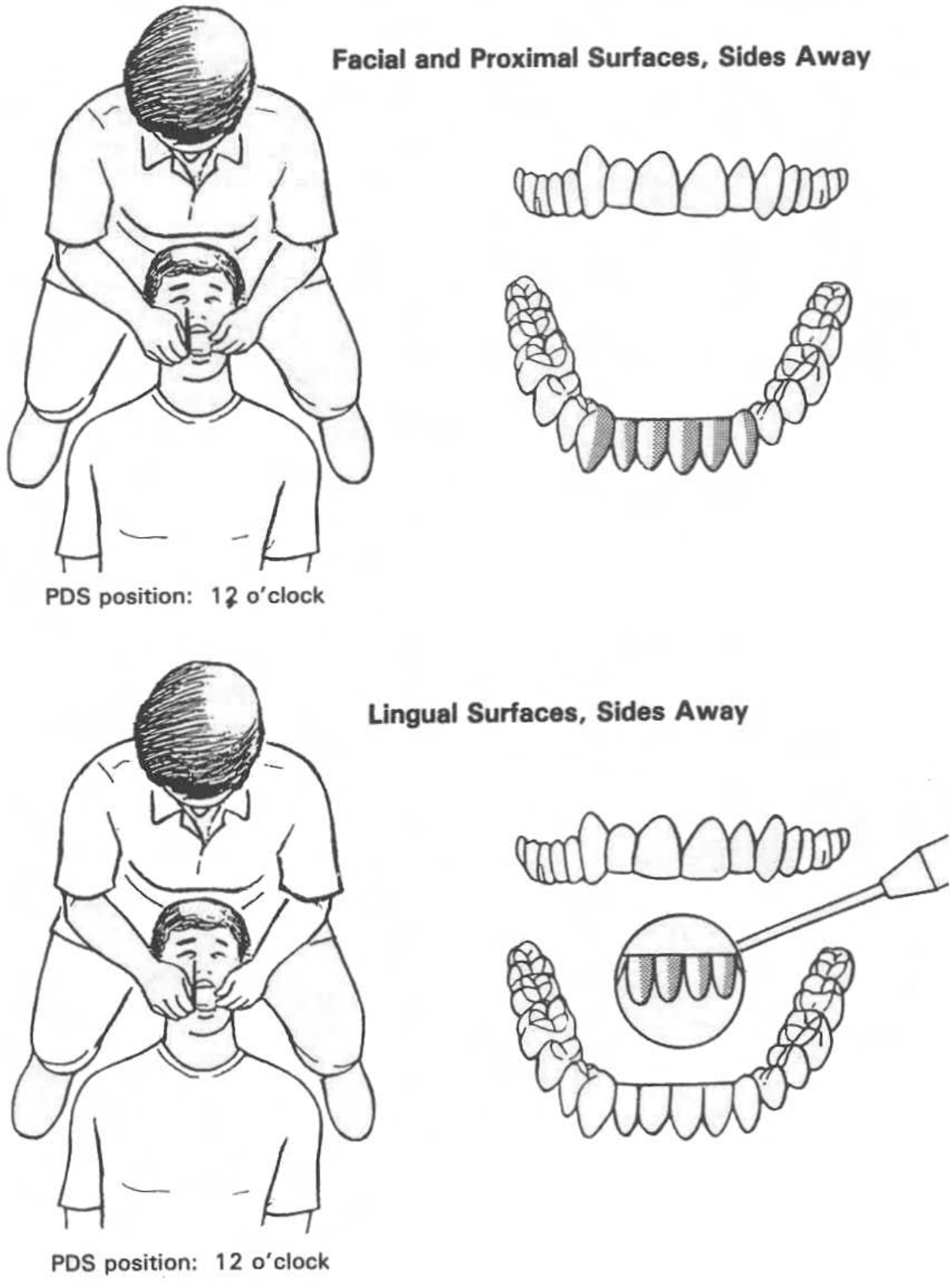
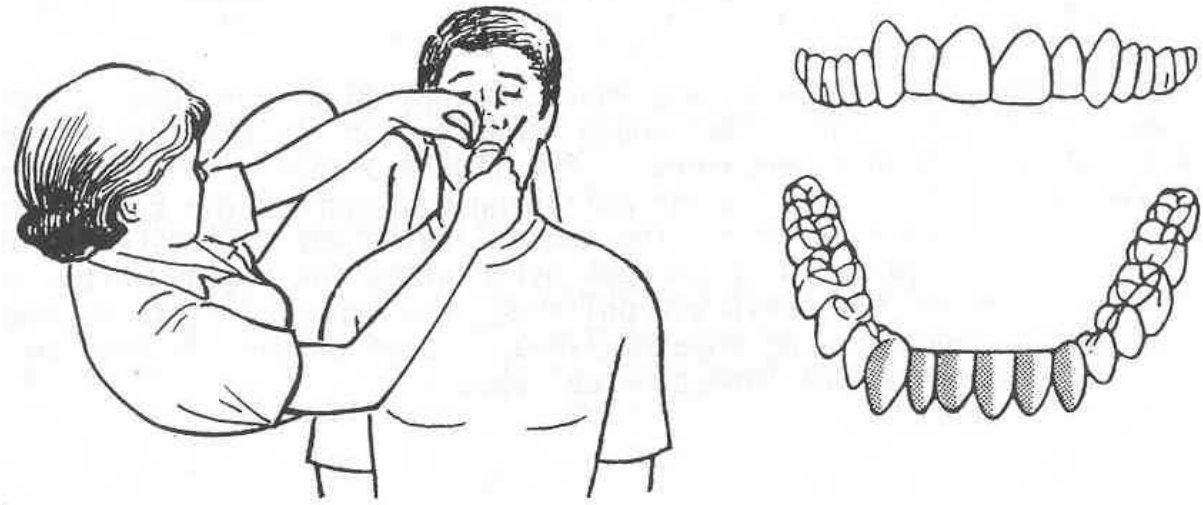


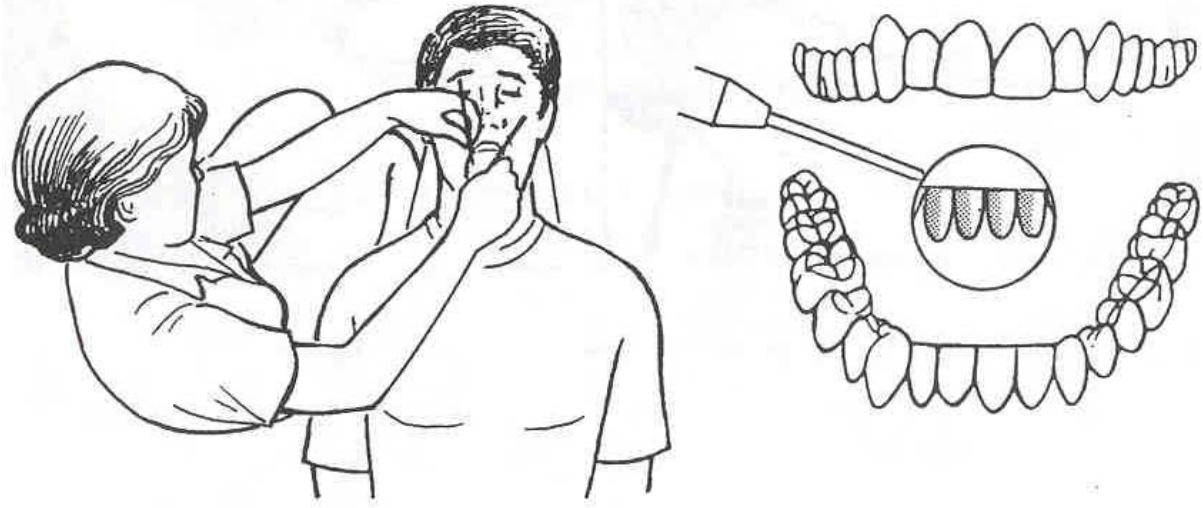
Figure 3-16. Positioning for mandibular anterior teeth, sides away from the PDS.

Facial and Proximal Surfaces, Sides Toward



PDS position: 8 o'clock

Lingual Surfaces, Sides Toward



PDS position: 8 o'clock

Figure 3-17. Positioning for mandibular anterior teeth, sides toward the PDS.

3-14. POLISHING

a. **General.** When all calculus deposits have been removed, the teeth can be polished. This is done the same way a jeweler polishes jewelry, using a fine abrasive. The abrasive used to polish teeth is a powder called zirconium silicate.

b. **Procedure.** The polishing agent is applied to the teeth with a small rubber cup, using the contra-angle handpiece or the straight shaft handpiece and a disposable prophyhead. See figure 3-18. Firm finger rests must be used at all times during the polishing procedure. The rubber cup must be kept well-filled with paste and the dental engine set to rotate slowly so as to avoid tissue injury and to prevent overheating the tooth. After readily accessible surfaces of the teeth are polished, the proximal surfaces should be polished with the paste, using unwaxed floss or tape as the carrier, to remove the polishing paste from the interproximal spaces.

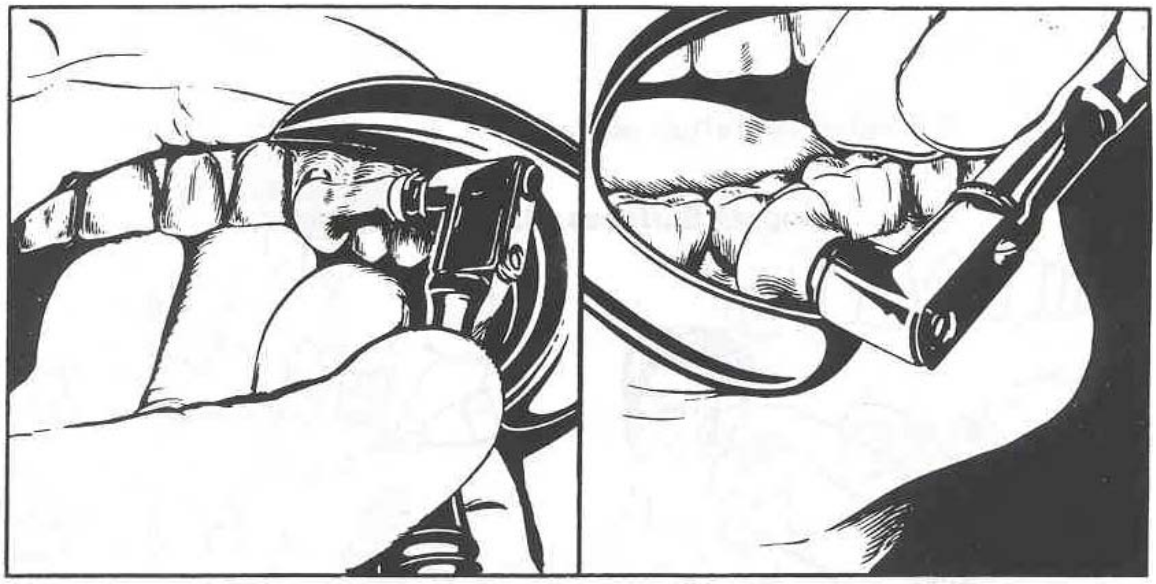


Figure 3-18. Polishing the teeth.

Section III. FLUORIDES AND PROPHYLAXIS PASTE

3-15. APPLYING FLUORIDES - GENERAL

Fluorides applied in various ways will markedly reduce the incidence of dental caries. The most effective results are derived from incorporating fluoride in the drinking water. Administering supplemental systemic fluoride and topical applications of fluoride solutions, prophylaxis pastes, and fluoride toothpastes are also beneficial.

3-16. COMMUNITY WATER FLUORIDATION

The most effective of all dental public health measures is fluoridation of community water supplies. A 65 percent reduction in dental decay can be produced by water fluoridation. The optimum level of fluoride in water is one part fluoride in one million parts of water (one part per million (ppm)). This concentration may vary from 0.7 to 1.2 ppm depending on the mean daily temperature of the area being considered. Simply, more water is consumed in warmer climates. Therefore, less fluoride in the water is needed than in cooler climates. The protection produced by a continuous consumption of water lasts a lifetime. Studies show that 50 percent of teenagers in communities having fluoridated water are free of dental decay as compared to only 5 percent in nonfluoridated communities. The incidence of root caries in older patients is also only half of that in nonfluoridated water supplies. Consumption of drinking water containing two ppm or more of fluoride by children can cause enamel defects and staining of teeth called fluorosis. It is an intrinsic stain and can be an unsightly esthetic problem to the patient. (Water sources other than a community supply should be checked for fluoride content before a fluoride supplement is prescribed.) Fluoridated water has been endorsed by the Department of the Army for adoption on Army installations where there is a substantial child population in residence, where natural fluoride levels are ineffectively low, and where the levels can be adequately controlled. Most Army installations in the US and many in overseas areas use fluoridated water supplies.

3-17. SUPPLEMENTAL SYSTEMIC FLUORIDATION

a. **General.** Caries reduction rates can be obtained by administering fluoride drops or tablets to children. Dosage, as prescribed by a dentist or physician, is based on the age of the child and the level of fluoride in their drinking water.

b. **Three Years or Older.** A typical prescription for a child 3 years or older is as follows.

> Rx Sodium fluoride tablets 2.2 mg.
> Dispense 120 tablets.
> Sig. One tablet each day, to be chewed and swished before swallowing.
>
> **CAUTION:** Store out of reach of children

c. **Two to Three Years of Age.** For the child between two and three years of age, the directions for the label can be changed to specify either one half of a 2.2 mg tablet each day or a tablet containing 1.1 mg of sodium fluoride every day.

d. **Infants.** One 2.2 mg tablet of sodium fluoride completely dissolved in 1 quart of water will provide infants with fluoridated water containing approximately 1 ppm.

e. **Dietary Supplements.** Vitamins and sodium fluoride have been combined in a number of products marketed as dietary supplements for infants and children. These products are prescribed rather frequently by pediatricians. There is little question of the effectiveness of the fluoride in vitamins in reducing the incidence of dental caries when used daily. However, there is no evidence that the inclusion of the vitamins enhances the effectiveness of the fluoride. The fixed proportion of ingredients in the combination also makes it more difficult to adjust appropriately the amount of fluoride prescribed in areas where the drinking water contains substantial but inadequate levels of fluoride. For these reasons, the Council on Dental Therapeutics has accepted brands of sodium fluoride as dietary supplements, but has not accepted combinations with vitamins.

f. **Prenatal Use.** Prenatal fluoride administration has not consistently demonstrated beneficial results. The US Food and Drug Administration banned the marketing of fluoride-containing products that made claims of preventing decay in children whose mother ingested fluoride during pregnancy.

3-18. TOPICAL APPLICATION

a. **General.** Fluoride may also be applied directly to the surface of the teeth. The effectiveness of topically applied fluoride varies with the concentration of the solution used and the method and frequency of application. A number of fluoride preparations are available for topical use. These consist of sodium fluoride, acidulated phosphate-fluoride, and stannous fluoride.

b. **Mouth Rinses.** Daily mouth rinsing with a solution of 0.05 percent sodium fluoride or weekly rinsing with 0.2 percent sodium fluoride has been shown to reduce the incidence of dental caries by about 30 percent in both fluoridated and nonfluoridated communities.

c. **Dentifrices.** Currently both sodium fluoride and sodium monofluorophosphate are being used as fluoride additives to toothpastes. Stannous fluoride was used until 1981, but was discontinued. Daily use of any of the American Dental Association approved toothpastes containing fluoride reduces caries by 20 to 40 percent.

d. **Topical Solutions.**

(1) Sodium fluoride. As a topical solution, sodium fluoride has been shown to reduce the incidence of caries by at least 20 percent in nonfluoridated communities. Its effectiveness in fluoridated communities has not been established. A 2 percent solution is recommended to be applied in a series of four treatments given several days apart and following a single prophylaxis at age 3 to afford protection to the deciduous teeth and as groups of permanent teeth erupt at ages 7, 11, and 13. Adjustment to that schedule should be made according to each child's pattern of tooth eruption. Following a thorough prophlylaxis, the teeth are isolated with cotton rolls, dried thoroughly, and wet completely with a two percent aqueous sodium fluoride solution. The solution is left in place for 3 to 5 minutes, taking precautions to prevent saliva contamination. A prophylaxis prior to the remaining topical treatments is usually not necessary if they are done within a few days.

(2) Acidulated phosphate fluoride. The topical application of sodium fluoride solutions and gels acidified with orthophosphoric acid has been demonstrated by clinical studies to have significant caries-inhibiting effect in children. The preparation most often employed contains a fluoride concentration of 1.23 percent in approximately 1 percent orthophosphoric acid. Annual topical applications of acidulated phosphate-fluoride gels in trays have produced reductions in dental caries of 37 to 41 percent. Daily tray applications of a 0.5 percent gel each school day produced a reduction of approximately 80 percent in a nonfluoridated area. Both neutral and acidulated phosphate fluoride gels have been used successfully to control the rampant decay seen in cases of xerostomia (dry mouth) produced by cancer radiation therapy. In the tray procedure, a ribbon of gel is placed in the tray, the teeth are dried, the tray is seated over the teeth and squeezed slightly to expel the gel, and then allowed to remain in place for four minutes. The patient is instructed not to eat or rinse his mouth for the next 30 minutes.

CAUTION: When using prophylaxis paste, the PDS must cover porcelain-veneered crowns with petroleum jelly.

(3) Stannous fluoride. A single application of a freshly prepared 8 percent aqueous solution of stannous fluoride at 6- to 12-month intervals is the generally preferred method of use. This method with stannous fluoride requires less time than the series of four applications of sodium fluoride and appears to produce similar caries-reducing results. The stannous fluoride solution is applied in basically the same manner as the other fluoride solutions. Staining has been noted in some clinical studies using stannous fluoride. Some studies indicate the dark stain to be related to debris and plaque material rather than tooth structure. Further studies are needed to completely evaluate this problem.

e. **Prophylaxis Pastes With Fluoride.** A thorough prophylaxis removes a very thin layer of enamel from the teeth. This layer is generally very rich in fluoride and otherwise more highly mineralized than the deeper layers. Some researchers suggest that if a prophylaxis is not to be followed by a topical application of a concentrated fluoride solution or gel, a fluoride-containing prophylaxis paste should be used in an effort to replenish lost fluoride. However, other researchers feel that fluoride prophylaxis pastes are ineffective when used without a topical solution.

3-19. PRECAUTIONS

Fluoride solutions are toxic to the human body if ingested in large quantities. They cause nausea if swallowed in small amounts, particularly in small children. Close supervision and care must be taken when using these solutions clinically or when prescribing them for home use. Many commercial preparations of fluoride mouthwashes are now available over the counter at most drug stores. Patients should be cautioned to follow the manufacturer's directions exactly.

3-20. OCCLUSAL SEALANTS

Although fluoride will drastically reduce the overall prevalence of dental caries, it is least effective on occlusal decay. This is the area in which the occlusal sealants are a valuable adjunct. With this method, the outermost layer of enamel is made receptive to bonding by acid decalcification. The orifices of the pits and fissures are physically occluded with a resin material rendering them immune to caries as long as the resin is retained. Retention seems to be greater for premolars than molars and for mandibular rather than maxillary teeth. It would seem that the concern about possible progression of carious lesions isolated underneath sealant materials is unfounded. As long as the sealant is intact, there is a progressive decrease in the number of viable bacteria under the restoration and thus the carious lesion may become inactive. Occlusal sealant application should be part of the preventive dentistry program.

3-21. POLISHING WITH PROPHYLAXIS PASTE

a. **General.** Commercially available prophylaxis preparations come in a variety of forms--pastes, powders, or tablets. For those preparations requiring mixing before use, refer to the manufacturer's instructions.

b. **Use.** The paste cleans best when it is thick, resembling window putty. If the mixture is too dry, water may be added one drop at a time. Avoid adding too much water. A thin mixture will not clean properly. If the mixture is too thin, small particles of zirconium silicate may work into the handpiece and cause premature wear. When zirconium silicate is used, the handpiece should be cleaned after each use to minimize damage. Rubber cups are used on facial and lingual surfaces. Unwaxed dental floss or tape is used on proximal surfaces. Stiff-bristled prophylaxis brushes are used on occlusal surfaces and in pits and fissures. Each surface is polished a full 10 seconds. The major protective effect of these compounds is the prevention or arrest of proximal caries.

c. **Precautions.** When polishing with prophylaxis paste, certain precautions are necessary.

(1) Concern about swallowing. Care should be taken to prevent swallowing or trickling of prophylaxis paste into the patient's pharynx. This causes gagging or nausea.

(2) Inflammation after scaling. If acute inflammation is present after scaling, polishing should be delayed until the inflammation resolves.

(3) Injury of soft tissues. Care should be used to avoid injuring soft tissues during polishing.

(4) Frequent rinsing. During prophylaxis, frequent and thorough rinsing should be carried out to prevent prolonged contact of paste with gingival tissues. Prolonged contact can cause blanching of the tissues.

Continue with Exercises

EXERCISES, LESSON 3

INSTRUCTIONS. Answer the following exercises by marking the lettered response that best answers the question or best completes the incomplete statement or by writing the answer in the space provided.

After you have completed all the exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers.

1. As used in dentistry, oral prophylaxis refers to:

   a. Safety precautions used by the PDS.

   b. Antiseptic mouth rinsing.

   c. All procedures done in the mouth.

   d. Scaling and polishing procedures.

   e. Ability to recognize oral disease.

2. A good oral prophylaxis is one in which there is the least:

   a. Trauma to tissues and restorations.

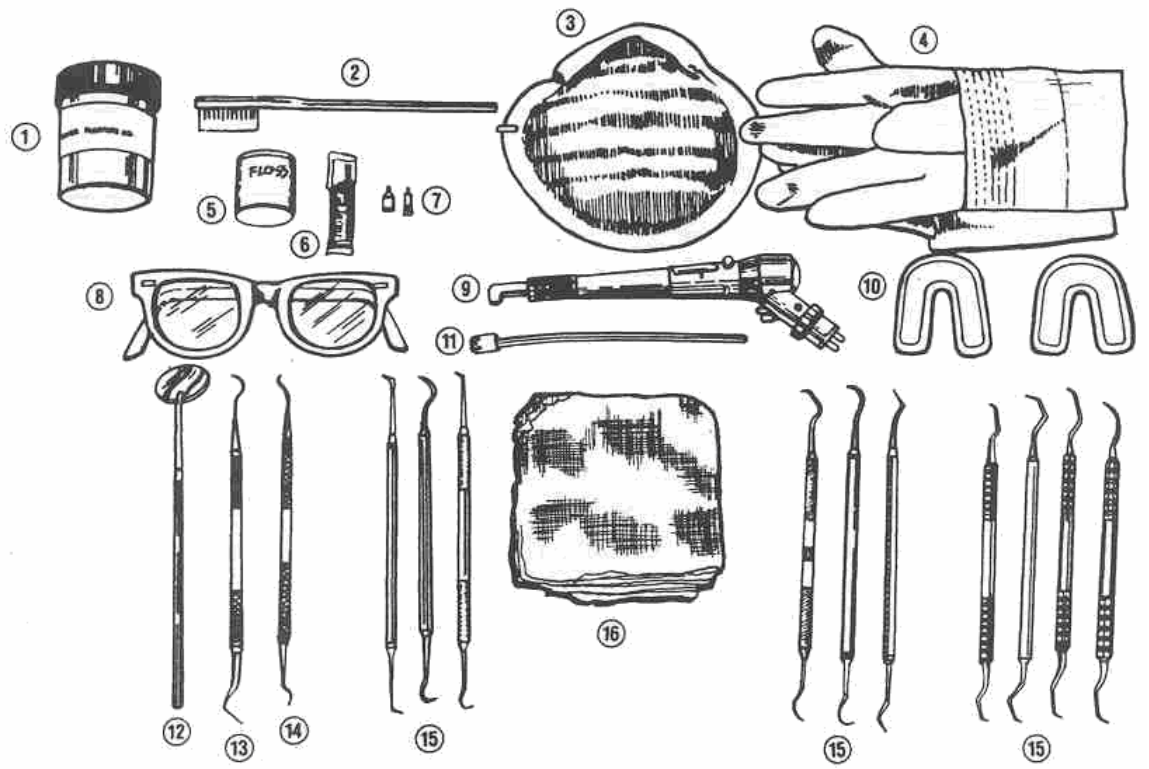
   b. Scaling and polishing.

   c. Fluoride solution applied to the teeth.

   d. Discomfort to the patient.

   e. Items "a" and "d" above.

3. In the illustration of instruments and materials for oral prophylaxis below, identify the following items.



a. Number 3 _____

b. Number 4 _____

c. Number 8 _____

d. Number 9 _____

e. Number 10 _____

4. Match the detection instrument in Column II to the description in Column I.

COLUMN I	**COLUMN II**
(1) ___ Detects calculus, caries, and examines contours of teeth and restorations.	a. Mirror.
(2) ___ Allows for a more proficient examination of oral tissue and supragingival deposits.	b. Periodontal probe.
(3) ___ Measures sulcus and pocket depths.	c. Explorers.

5. Match the scaling instrument in Column II to the description in Column I.

COLUMN I	**COLUMN II**
(1) ___ Used in all areas of the mouth.	a. Gracey curettes.
(2) ___ Used to remove subgingival calculus.	b. Sickle scalers.
(3) ___ Used to remove supragingival calculus.	c. Universal curettes.

6. Which of the following instruments is used primarily for the mesial surfaces of posterior teeth?

   a. Columbia 13-14.

   b. Gracey 11-12.

   c. Gracey 13-14.

   d. McCall's 13S-14S.

   e. Jacquette 21S-33.

7. Which of the following scaling instruments is more likely to produce undue trauma?

    a. Sickle Scaler U 15-33.

    b. Younger-Good 7-8.

    c. Columbia 13-14.

    d. Gracey 1-2.

8. Which of the following items of equipment uses an activated insert tip together with the bubbling action of water to dislodge calculus and stain?

    a. Prophy jet.

    b. Dental unit sonic scaler.

    c. Ultrasonic dental unit.

9. To avoid damage to tooth structure, does the insert tip of the ultrasonic dental unit have to be kept moving constantly?

    a. Yes.

    b. No.

10. Which of the following items of equipment is handled like a slow-speed handpiece?

    a. Ultrasonic dental unit.

    b. Air polishing prophylaxis unit.

    c. Dental unit sonic scaler.

11. Which of the following must not be used on patients with cardiac pacemakers?

    a. Ultrasonic dental unit.

    b. Prophy jet.

    c. Dental unit sonic scaler.

12. Which of the following items of equipment should be used only by a PDS who is specifically trained in its usage?

    a. Ultrasonic dental unit.

    b. Prophy jet.

    c. Dental unit sonic scaler.

13. List three methods of grasping a scaling instrument.

    a. _____

    b. _____

    c. _____

14. Which method of grasping a scaling instrument is used with the Porte Polisher, and also the air, water syringe?

    a. Pen grasp.

    b. Modified pen grasp.

    c. Palm grasp.

15. Complete statements related to the use of scaling instruments.

    a. From the base of the calculus deposit, the scaling instrument is pulled toward the _____ or _____ surface.

    b. In working on lingual and proximal surfaces, a PDS must depend upon _____ _____to determine the presence and extent of calculus.

16. Complete statements related to establishing a finger rest and the steps in the scaling process.

    a. Establish a finger rest on the same _____ being worked on, preferably on an _____ tooth.

    b. Place the tip of the instrument beneath the _____ to be scaled, with the tip in contact with the tooth _____ at all times.

    c. Activate the instrument using _____ _____activation. Move the instrument in a _____ direction, always leading with the tip.

17. In the blank spaces provided, list the scaling and polishing sequence recommended in the text. Use numbers 1 through 6 to indicate the proper sequence.

    _____ a. Mandibular right posterior.

    _____ b. Maxillary anterior.

    _____ c. Mandibular left posterior.

    _____ d. Maxillary left posterior.

    _____ e. Mandibular anterior.

    _____ f. Maxillary right posterior.

18. Which tooth surfaces are generally scaled and polished first?

    a. Lingual surfaces.

    b. Facial and proximal surfaces.

19. Match the suggested finger rest in Column II to the area in the mouth in Column I. Items in Column II can be used more than once.

COLUMN I

(1) ____ Maxillary right posterior, facial and proximal surfaces.

(2) ___ Maxillary right posterior,lingual surfaces.

(3) ___ Maxillary anterior.

(4)___ Mandibular left posterior.

(5) ___ Mandibular anterior, left sides

(6) ___ Mandibular anterior, right sides.

(7) ___ Mandibular right posterior.

COLUMN II

a. Occlusal surfaces.

b. Facial or occlusal surfaces

c. Linguoincisal edges of adjacent teeth.

d. Facial surfaces.

e. Lingual surfaces.

20. Match the suggested PDS position (for a right-handed person) in Column II to the area in the mouth in Column I. Items in Column II may be used more than once. Items in Column I may have more than one correct answer.

COLUMN I	**COLUMN II**
(1) ___ Maxillary right posterior, facial, and proximal surfaces.	a. 12 o'clock position.
(2) ___ Maxillary right posterior, lingual surfaces.	b. 9 o'clock position.
(3) ___ Maxillary anterior	c. 8 o'clock position.
(4) ___ Mandibular left posterior, facial and proximal surfaces.	
(5) ___ Mandibular left posterior, lingual surfaces.	
(6) ___ Mandibular anterior, left sides.	
(7) ___ Mandibular anterior, right sides.	
(8) ___ Mandibular right posterior, facial, and proximal surfaces.	
(9) ___ Mandibular right posterior, lingual surfaces.	

21. When scaling the lingual surfaces of teeth, a mouth mirror is usually needed for light and vision. However, for the _____ teeth, a mouth mirror is needed for tongue retraction.

a. Mandibular anterior.

b. Maxillary right posterior.

c. Mandibular right posterior.

d. Maxillary left posterior.

e. Mandibular left posterior.

22. The suggested finger rest is on the occlusal surfaces for the:

    a. Mandibular anterior, right lingual surfaces.

    b. Maxillary anterior, lingual surfaces.

    c. Mandibular left posterior, lingual surfaces.

    d. Maxillary right posterior, facial, and proximal surfaces.

    e. Mandibular anterior, lingual surfaces.

23. The suggested finger rest is on the lingual surfaces for the:

    a. Mandibular anterior, sides toward (right sides).

    b. Maxillary left posterior, facial, and proximal surfaces.

    c. Mandibular right posterior, facial, and proximal surfaces.

    d. Mandibular left posterior.

    e. Mandibular anterior, sides away (left sides).

24. The suggested PDS position is at 12 o'clock to scale the (choose more than one response):

    a. Maxillary right posterior, facial, and proximal surfaces.

    b. Mandibular anterior, facial, and proximal surfaces, sides away (right sides).

    c. Maxillary left posterior, facial, and proximal surfaces.

    d. Mandibular anterior, lingual surfaces, sides away (left sides).

    e. Mandibular right posterior, facial, and proximal surfaces.

25. The suggested PDS position is at 9 o'clock to scale the (choose more than one response):

    a. Mandibular right posterior, facial, and proximal surfaces.

    b. Maxillary right posterior, facial, and proximal surfaces.

    c. Mandibular left posterior, lingual surfaces.

    d. Maxillary anterior, facial, and proximal surfaces.

    e. Mandibular anterior, lingual surfaces, sides toward.

26. The suggested PDS position is at 8 o'clock to scale the (choose more than one response):

    a. Maxillary left posterior, lingual surfaces.

    b. Mandibular anterior, facial surfaces, sides toward.

    c. Mandibular left posterior, facial and proximal surfaces.

    d. Mandibular anterior, lingual surfaces, sides toward.

    e. Mandibular right posterior, facial and proximal surfaces.

27. Complete information related to polishing teeth.

    a. An abrasive powder called _____ _____is used to polish teeth.

    b. The polishing agent is applied to the teeth with a small_____ _____, using the _____ handpiece.

    c. Unwaxed _____ or _____ is used as the carrier to polish proximal surfaces.

28. The optimum level of fluoride concentration in water is:

    a. 0.7 to 1.2 ppm.

    b. 1.2 to 2.0 ppm.

29. Fifty percent of teenagers are free of dental decay where there is fluoridated water. What is the percentage for nonfluoridated communities?

    a. 20 percent.

    b. 10 percent.

    c. 5 percent.

30. Less fluoride is needed in a community water system in:

    a. Cooler climates.

    b. Warmer climates.

31. The typical prescription of sodium fluoride tablets for a child 3 years of age or older is:

    a. One 2.2 mg tablet dissolved in 1 quart of water.

    b. One-half of a 2.2 mg tablet each day.

    c. A mixture of vitamins and sodium fluoride.

    d. One chewable 2.2 mg tablet each day.

32. Daily use of toothpaste with fluoride additives reduces caries by:

    a. 20 percent.

    b. 30 percent.

    c. 20 to 40 percent.

33. Match the topical fluoride solution in Column II to the treatment description in Column I.

COLUMN I	**COLUMN II**
(1) ___ Four treatments, several days apart, as groups of permanent teeth erupt.	a. Stannous fluoride.
(2) ___ Annual topical application of gels in trays or daily tray application.	b. Sodium fluoride.
(3) ___ A single application at 6 to 12 month intervals.	c. Acidulated phosphate flouride.

34. The topically applied fluoride solution that takes less time to use is:

    a. Sodium fluoride.

    b. Acidulated phosphate fluoride.

    c. Stannous fluoride.

35. Select the topical fluoride solution with an 8 percent aqueous solution.

    a. Acidulated phosphate fluoride.

    b. Stannous fluoride.

    c. Sodium fluoride.

36. Complete information related to occlusal sealant application.

    a. Fluoride is least effective on _____ decay.

    b. The orifices of the _____ and _____ are physically occluded with a _____ material.

    c. This sealant renders them _____ to caries as long as the resin is retained.

37. Prophylaxis paste cleans and polishes best when it is:

    a. Dry.

    b. Thin.

    c. Thick.

38. When zirconium silicate is used for tooth polishing, the handpiece should be cleaned:

    a. After each use.

    b. At the end of each day.

    c. At regular intervals.

39. Each tooth surface is polished a full:

    a. 5 seconds.

    b. 10 seconds.

    c. 15 seconds.

    d. 20 seconds.

40. Complete information related to the polishing of teeth.

    a. When polishing facial and lingual surfaces of teeth, _____ _____are used.

    b. When polishing proximal surfaces,_____ dental floss or tape is used.

    c. When polishing occlusal surfaces, _____prophylaxis brushes are used.

41. Complete information related to precautions to be followed when using prophylaxis paste.

    a. Care should be taken to prevent swallowing or trickling of prophylaxis paste into the pharynx. This causes _____ or _____.

    b. Care should be used to avoid injuring _____ during polishing.

    c. Frequent and thorough _____ should be carried out to prevent prolonged contact with gingival tissues.

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES, LESSON 3

1. d (para 3-1)

2. e (para 3-1)

3. a. Face mask.
   b. Gloves.
   c. Protective glasses.
   d. Prophy angle handpiece.
   e. Fluoride trays. (figure 3-1)

4. (1) c
   (2) a
   (3) b (para 3-4)

5. (1) c
   (2) a
   (3) b (para 3-5)

6. b (para 3-5c(3))

7. a (para 3-5a(1))

8. c (para 3-6a)

9. a (para 3-6b)

10. c (para 3-7a)

11. a (para 3-6c(4))

12. b (para 3-7b)

13. Pen grasp.
    Modified pen grasp.
    Palm grasp. (para 3-8b)

14. c (para 3-8b(2))

15. a. occlusal; incisal (para 3-8c)
    b. tactile sense (para 3-8d)

16. a. arch; adjacent (para 3-9b,c)
    b. deposit; surface (para 3-9d(4))
    c. rotary motion; coronal (para 3-9d(6))

17. a. 6
    b. 2
    c. 4
    d. 3
    e. 5
    f. 1 (para 3-10)

18. b (para 3-10)

19. (1) e
    (2) a
    (3) c
    (4) a
    (5) d
    (6) e
    (7) a (para 3-13; Appendix D)

20. (1) b
    (2) b
    (3) a or c
    (4) b
    (5) b
    (6) a
    (7) c
    (8) b
    (9) b (para 3-13; Appendix D)

21. e (para 3-13d; Appendix D)

22. c (para 3-13d; Appendix D)

23. a (para 3-13e; Appendix D)

24. b, d (para 3-13e; Appendix D)

25. a, b, c (para 3-13a, d, f; Appendix D)

26. b, d (para 3-13e; Appendix D)

27. a. zirconium silicate
    b. rubber cup; contra-angle
    c. floss; tape (para 3-14)

28. a (para 3-16)

29. c (para 3-16)

30. b (para 3-16)

31. d (para 3-17b)

32. c (para 3-18c)

33. (1) b
(2) c
(3) a (para 3-18d)

34. c (para 3-18d(3))

35. b (para 3-18d(3))

36. a. occlusal
b. pits; fissures; resin
c. immune (para 3-20)

37. c (para 3-21b)

38. a (para 3-21b)

39. b (para 3-21b)

40. a. rubber cups
b. unwaxed
c. stiff-bristled (para 3-21b)

41. a. gagging; nausea
b. soft tissues
c. rinsing (para 3-21c)

End of Lesson 3

LESSON ASSIGNMENT

LESSON 4	Self-Care Procedures.
TEXT ASSIGNMENT	Paragraphs 4-1 through 4-17.
LESSON OBJECTIVES	After completing this lesson, you should be able to:

4-1. Identify the importance of self-care measures in oral hygiene.

4-2. Identify toothbrushing techniques and the major toothbrushing methods.

4-3. Identify the use of dentifrices and disclosing materials.

4-4. Identify the procedures for using dental floss.

4-5. Identify supplementary self-care items that clean the teeth and stimulate the gums.

4-6. Identify the importance of nutrition in the general health of the teeth.

SUGGESTION After studying the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

LESSON 4

SELF-CARE PROCEDURES

Section I. OVERVIEW

4-1. GENERAL

A program of preventive dentistry depends heavily upon patient participation and cooperation. The success of the program depends on how well the patients are taught and how well they are motivated to perform preventive procedures. Any Army installation with one or more dental officers practicing dentistry has a preventive dentistry program which includes comprehensive educational programs for military personnel and their family members. Patients should be taught good self-care measures and proper diet. The patient population should be informed about the importance of good oral hygiene, maintaining the integrity of the deciduous dentition, and regular professional care in the prevention of oral disease. This information can be disseminated in many different ways. It can be given in lectures to troops in small or large groups and to children in the school classrooms. It can be presented at parent-teacher meetings, wives' club meetings, and prenatal and well-baby clinics. The benefit derived from knowledge of preventive procedures should be communicated to as many people in as many ways as possible.

4-2. ORAL HYGIENE

Development of and adherence to good oral hygiene practices is the most important measure in preventing oral disease. Under field and combat conditions, the associated stress, diet, and fatigue make the practice of oral hygiene especially important in maintaining oral health and conserving the fighting strength. At the same time, it is under these conditions that a person is most likely to neglect personal hygiene. A continual education program for the troops and commanders is essential to encourage observance of oral hygiene practices under all conditions.

4-3. SELF-CARE MEASURES

The most effective measures in maintaining oral health are those the individual performs himself. This means the practice of good oral hygiene. The PDS and other dental specialists should be familiar with current oral hygiene knowledge and techniques and be prepared to instruct patients. The best preventive self-care depends upon the use of a suitable toothbrush and an effective toothbrushing technique, the use of a suitable dentifrice, the use of a disclosing material, the correct use of dental floss, and other self-care measures.

Section II. TOOTHBRUSHING

4-4. THE TOOTHBRUSH

The teeth are brushed to remove bacterial mucin plaque and stains and to improve the health of the gingival tissues through stimulation. Effective brushing can be done only with a suitable toothbrush. The toothbrush should be durable with soft nylon bristles arranged so as to give the most cleansing action without injuring tissues or the adjacent soft tissues. A patient should have enough toothbrushes to ensure that a clean, dry brush is available for each brushing. See figure 4-1. Brushes with bristles that have become loose or have lost resiliency should be replaced.

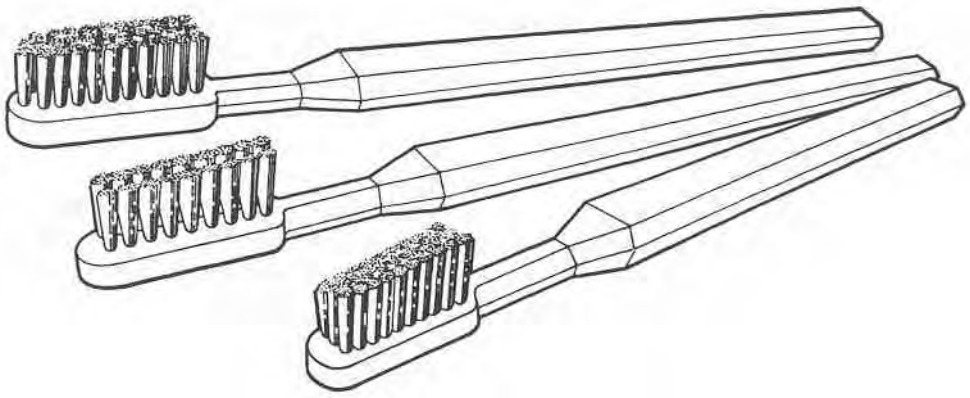


Figure 4-1. Toothbrushes.

4-5. TOOTHBRUSHING TECHNIQUES

Several toothbrushing techniques are satisfactory. Whatever technique is used, four points should be remembered.

a. The first point is to clean the teeth and to stimulate gingival tissues without injuring tooth structure, gingiva, or other oral tissues.

b. The second point is to brush every surface of every tooth and to provide stimulation to gingival tissues.

c. The third point is to devote enough time to each area to ensure adequate cleaning.

d. The fourth point is to pay special attention to brushing hard-to-reach areas.

4-6. SEQUENCE OF BRUSHING

A sequence of brushing should be developed in which every tooth and area is adequately reached. The sequence should also provide enough brushing time in each area and in places where areas overlap.

4-7. MANIPULATING THE BRUSH

To cleanse the occlusal surfaces of teeth, the tips of the bristles should be worked into the pits and fissures with enough vibration to loosen and dislodge all debris. To cleanse exposed axial surfaces, the sides of the bristles should be placed against the gingival tissues to avoid lacerating them with the bristle tips. Then, holding the sides of the bristles against the gingiva, rotate the bristles toward the occlusal or incisal surfaces. The bristle should be worked between teeth and into interproximal areas to dislodge accessible food debris and plaque. When the brush is used to stimulate or massage the gingiva, the sides of the bristles should be placed against gingival tissues near the bristle tips. With light pressure, the brush should be rotated slightly to flex the bristles against the gingiva, and a vibrating motion should be transmitted through the handle.

4-8. MAJOR TOOTHBRUSHING METHODS

a. **Bass Method.** This method is useful for all types of dental conditions, especially periodontal problems. With bristles pointed at a 45-degree angle into the gingival sulcus, vibrate the brush gently back and forth about 20 times. Move the brush forward and repeat.

b. **Rolling Stroke Method.** This method is useful for stimulation of the gingiva. Place the brush above the free gingiva with the bristles pointed toward the apices. Exerting light pressure, draw the brush toward the occlusal surface using a rolling stroke. Use a scrub technique on the occlusal surface.

c**. Charter's Method.** This method is useful for patients with severe loss of interdental papilla height, fixed prosthetic appliances, previous gingival surgery, or subsided ulcerative gingivitis. Perform the rolling stroke first to remove debris from the teeth. Direct the bristle tips toward the occlusal or incisal surface. Gently rotate the handle, flexing the bristles and bringing them into contact with the interdental tissues and exposed proximal surfaces. Vibrate the handle of the brush with a slow, circular motion.

d. **Modified Stillman's Method.** This method is useful for patients with hypersensitive gingiva or slightly reduced interdental papilla. Use the rolling stroke method while vibrating the bristles in a lateral motion.

e. **Fone's Method.** This method is useful for small children or others with poor manual dexterity. First, occlude the teeth. Then, lightly press the bristles against the posterior teeth and the gingiva. Revolve the brush head in a fast, circular motion, using circles of large diameter. Continue the circular motion, and slowly move the brush head toward the anterior until all facial surfaces have been brushed. With the mouth open, use the same circular motion on the maxillary and mandibular lingual surfaces.

f. **Horizontal Method.** This method is seldom used. It consists of holding the brush at a right angle to the teeth and scrubbing back and forth on the facial, lingual, and occlusal surfaces.

4-9. USE OF DENTIFRICES

Dentifrices clean and polish the teeth by the use of an abrasive. Dentifrices also help protect the teeth against dental caries by the addition of a fluoride compound. Dentifrices come as a liquid, a powder, and a paste. The liquid-type dentifrices do not provide the desired polishing effect. The powder-type dentifrices often are too abrasive or too difficult to control. The paste-type dentifrices containing a mild abrasive are effective in cleaning the teeth by removing the bacterial mucin plaque and in polishing the teeth. Fluoride compounds are added to toothpastes to help protect the teeth against dental caries. Acceptable fluoride toothpastes are recognized and classified by the Council on Dental Therapeutics. As a field expedient method, either table salt or sodium bicarbonate is used as a dentifrice. The toothbrush alone is also effective in removing some plaque.

4-10. USE OF DISCLOSING MATERIALS

Disclosing materials consist of dye substances. Disclosing materials are invaluable in showing the patient improperly cleaned areas of his teeth. In the natural state, bacterial mucin plaque is invisible. When the disclosing materials are put into the mouth, plaque is stained a very definite color. With periodic use of disclosing materials, the patient checks his toothbrushing technique and the PDS evaluates the thoroughness of his oral prophylactic treatment. The disclosing material used most is erythrosin, a water-soluble vegetable dye that stains plaque a brilliant red. This material is available in tablet form through the Federal supply catalog.

Section III. FLOSSING

4-11. USE OF DENTAL FLOSS

a. **General.** The toothbrush cannot reach every surface of the tooth where bacterial mucin plaques are apt to be attached. The toothbrush cleanses the majority of the surfaces of each individual tooth, but it cannot completely clean the proximal surfaces. The proximal surfaces represent about one-half of the areas affected by dental caries and nearly all early periodontal disease. The best method for cleaning proximal surfaces is the use of dental floss. The patient must be adequately trained in the use of dental floss for it to be an effective, non-traumatic procedure.

b. **Wrapping the Floss.** To use dental floss properly, a piece of floss about 18 to 24 inches long is cut and the ends are wrapped lightly around the middle fingers. Most of the floss is wrapped on one finger, but just enough is wrapped on the other finger to anchor the floss. Then, the floss can be used like a scroll, wrapping onto one finger and off the other as the floss is frayed or soiled.

c. **Holding the Floss.** To clean between all the mandibular teeth, the floss is held over the ends of the index fingers of both hands. To clean the maxillary right teeth, the floss is passed over the thumb of the right hand and the index finger of the left hand. The right thumb is to the outside of the teeth. To clean between the maxillary left teeth, the floss is passed over the left thumb and the index finger of the right hand. Now the left thumb is outside the teeth. See figure 4-2.

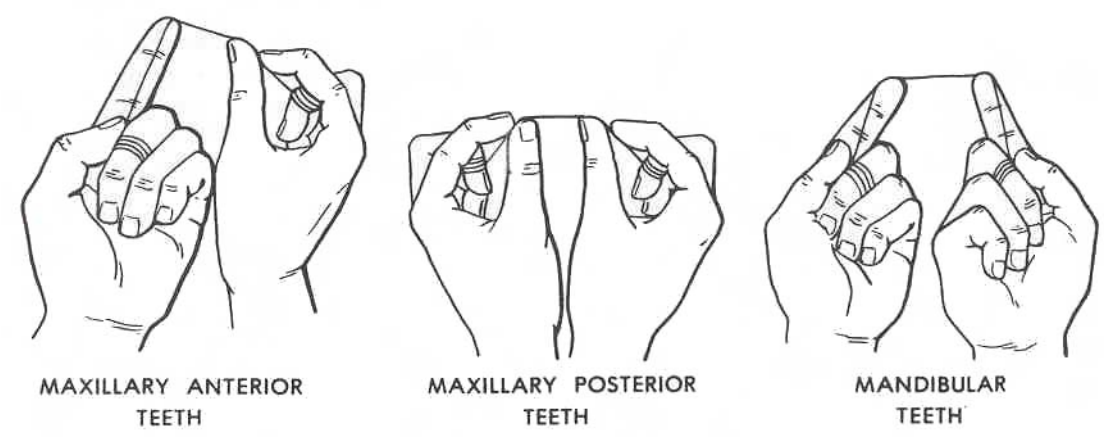


Figure 4-2. Methods for holding dental floss.

4-12. SUGGESTIONS FOR FLOSSING

Initial supervision and practice are required for effective flossing. The following are suggestions when flossing.

a. Wrap the floss tightly around the proximal surface in order to disorganize and remove plaque.

b. Do not force the floss between the teeth. Use a seesaw motion where contact areas are tight.

c. Move the floss up and down with both fingers four or five times on the proximal surface of one tooth. Repeat the process on the proximal surface of the other tooth until the surfaces are "squeaky clean."

d. Work the floss as far down as it will go into the gingival sulcus without inducing pain in order to have thorough cleaning.

e. Floss the distal surface of the most posterior tooth on each side of each arch.

f. Use a new section of floss when the floss has been frayed or soiled.

g. Rinse the mouth vigorously with water after flossing to remove food particles and plaque that has been loosened or disorganized.

Section IV. OTHER SELF-CARE MEASURES

4-13. SUPPLEMENTARY SELF-CARE MEASURES

a. **General.** Other self-care measures may be used to supplement brushing and flossing of the teeth. Thorough rinsing with water is used with all procedures. Sometimes, it is used alone as a field expedient method when other materials are not available. The cleaning of fixed partial dentures, removable dentures, and abutment teeth may present individual hygiene problems. The dental officer will prescribe supplemental measures, but the PDS should teach every patient all measures to maintain oral health.

b**. Toothpicks.** Although toothpicks are a valuable adjunct when used properly, their indiscriminate and careless use can cause irreparable damage to oral tissues through trauma and lodgement of toothpick splinters in the gingiva and interdental and subgingival areas. Recurring need for the use of toothpicks to dislodge food may indicate the presence of a cavity or the need for peridontal treatment.

c. **Mouthwashes.** The unsupervised use of mouthwashes for any purpose other than dislodging and rinsing of food particles from the mouth is of questionable therapeutic benefit. The masking of odors and the sensation of comfort resulting from the astringent action of mouthwash are temporary effects and do not constitute treatment or real benefit.

d. **Water-Jet Devices.** Some studies indicate that water-jet devices are effective in the removal of some plaque and debris from between the teeth for certain types of patients. Those patients for whom a water-jet lavage should be recommended are those wearing orthodontic bands, all patients with fixed partial prostheses, and all patients who cannot use the customary oral hygiene procedures. Both the pulsating and nonpulsating devices are available. The pulsating devices (mechanized type) are recommended because of the fact that when jets of comparable force are directed on tissues, those of the pulsating type produce less tissue pressure, are less traumatic, and are more effective than the nonpulsating jets. When pulsating water-jet devices are used, they should be adjusted so that the pressure switch is kept below the high level. The jet stream should be directed at right angles to the tooth axis. It must be remembered that these devices have not been proven effective in <u>total</u> plaque removal.

e. **Interdental Stimulators.** Interdental stimulators are used to supplement toothbrushing and flossing for certain patients. Included are patients with moderate to severe recession of interproximal gingiva or patients whose alignment of the teeth makes it difficult to clean and stimulate certain areas by other means. Interdental stimulators are available as soft, tapered, balsa wood or soft, conical, rubber tips mounted on a handle, often on the opposite end of a toothbrush handle. See figure 4-3. Before either is used, the teeth are cleaned. Balsa wood stimulators are triangular in cross section. They are inserted into the interproximal areas as far as possible with comfort, with the base of the triangle resting on the interproximal gingiva. This procedure is repeated gently several times in each interdental area. When rubber tips are used, they also are inserted as far as possible into the interproximal area without causing discomfort. The tip is rotated several times. The procedure is repeated in each interdental area to be treated.

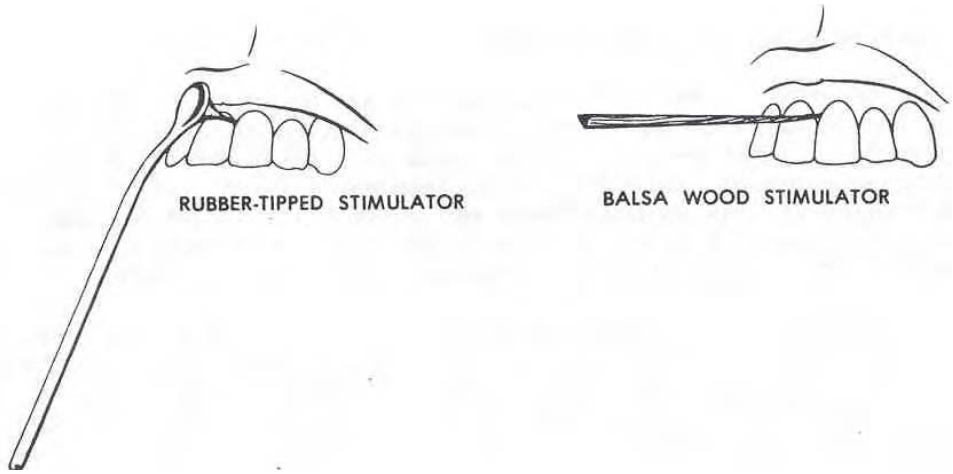


Figure 4-3. Types of interdental stimulators.

4-14. NUTRITION AND DIET--GENERAL

A diet considered adequate for the general health of an individual is generally considered adequate for his dental health. There are as yet no studies with humans which clearly indicate that specific vitamins or other nutrients are useful in the prevention or treatment of periodontal diseases. However, abundant evidence from human clinical studies shows that fluorides play an important role in lowering the incidence of dental caries. There is also considerable evidence that fermentable carbohydrates, particularly sucrose, play an important role in plaque formation and in the initiation and development of the carious lesion.

4-15. NUTRITIONAL COUNSELING

In nutritional counseling, the patient must be made aware of the nature of the problem and the important role of diet in resolving it. The relationship of sugars to dental caries must be clearly explained to the patient. Since the length of time that sugars are present or available to the bacterial plaque is important, the frequency of sugar ingestion and its adhesive characteristics are significant factors to be controlled. Direct correlation has been shown between the frequency of the between-meal snacks ("sticky" and "sweet" foods) and the activity of caries. Experience in nutrition counseling also shows that it is important to involve the patient when working to solve the patient's problem. The patient must provide information concerning his diet. This information is provided by asking the patient to keep a diary of the food he eats over a period of four or five days (including a weekend) and whether or not during this period the food intake pattern deviates from the normal. With the help of the counselor, the patient can then assist in the analysis of his own diet, noting the frequency and amount of sugar ingestion as well as its potential to promote caries. It is possible that the patient may suggest a suitable diet alteration.

4-16. NUTRITION GUIDE

The regular consumption of a balanced diet provides all the nourishment required for a healthy body. The groups of food that are listed below are recommended as a guide to daily food choices.

a. **Bread, Cereal, Rice, and Pasta Group.** Bread, cereal, rice, and pasta form a basic food group which is commonly referred to as "the staff of life." This group provides over 50 percent of the body's food energy needs. We normally consume more food from this group than from any of the other groups.

b. **Vegetable Group and Fruit Group.** Some detergent action (for teeth cleaning) can be expected from these foods, but they should not be used as a substitute for brushing and flossing. With vegetables, color is the guide to food value. The greenest and yellowest vegetables contain the most nutrients. Spinach is more nutritious than celery, and carrots are more nutritious than corn.

c. **Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts Group.** The daily servings from this group should be less than the number of servings from the vegetable group. The cheaper grades of meat are just as nutritious as the more expensive grades; however, the amount of fat in a cut of meat needs to be taken into account. Fish, poultry, and dishes with dry beans and/or eggs are nutritious alternatives to red meats.

d. **Milk, Yogurt, and Cheese Group.** The daily servings from this group should be equal to or less than the number of servings from the fruit group. Children need the nutritious elements that help build bones and healthy teeth, and so do older adults.

e. **Fats, Oil, and Sweets.** It is recommended that these items be used sparingly in food preparation. Fats and sugars naturally occur in some foods, but the overall consumption of these items needs to be limited to maintain a healthy body.

4-17. REFINED CARBOHYDRATES AND DENTAL DISEASE

Refined carbohydrates (sugars) going into solution in the mouth can penetrate the bacterial mucin plaque. These sugars are readily fermented by enzymes of organized bacteria in the plaque, forming acids which act on the enamel to initiate dental caries. If the teeth are well cleaned by toothbrushing and flossing, bacterial mucin plaque cannot attach to the tooth, bacteria cannot organize, and refined carbohydrates cannot produce dental caries.

Continue with Exercises

EXERCISES, LESSON 4

INSTRUCTIONS: Answer the following exercises by marking the lettered response that best answers the question or best completes the incomplete statement or by writing the answer in the space provided.

After you have completed all the exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers.

1. A person is most likely to neglect oral hygiene:

   a. When instruction is provided in large groups.

   b. When personal cooperation is solicited.

   c. Under field or combat conditions.

2. The most effective measures in maintaining oral health are those the individual performs _____.

3. A suitable toothbrush:

   a. Has soft nylon bristles.

   b. Is clean and dry.

   c. Has bristles which are resilient.

   d. Items "a" and "b" above.

   e. Items "a," "b," and "c" above.

4. The purpose of toothbrushing is to _____ the teeth and to _____ gingival tissue.

5. Complete statements in regard to manipulating a toothbrush.

   a. To cleanse the occlusal surfaces of teeth, the _____ of the bristles should be used to loosen and dislodge all debris.

   b. To cleanse exposed axial surfaces, the _____ of the bristles should be placed against the gingival tissues and rotated toward the occlusal or incisal surfaces.

6. Which of the following toothbrushing methods uses a scrub technique on the occlusal surface?

   a. Modified Stillman's method.

   b. Bass method.

   c. Rolling stroke method.

   d. Charter's method.

   e. Fone's method.

7. Which of the following toothbrushing methods is useful for patients with hypersensitive gingiva or slightly reduced interdental papilla?

   a. Modified Stillman's method.

   b. Bass method.

   c. Rolling stroke method.

   d. Charter's method.

   e. Fone's method.

8. Which toothbrushing method specifies pointing the bristles at a 45-degree angle into the gingival sulcus and vibrating the brush gently back and forth about 20 times?

    a. Modified Stillman's method.

    b. Bass method.

    c. Rolling stroke method.

    d. Charter's method.

    e. Fone's method.

9. Which toothbrushing method specifies that the teeth be occluded when brushing the facial surfaces, pressing the bristles against the posterior teeth and the gingiva, and revolving the brush head in a fast, circular motion, using circles of large diameter?

    a. Modified Stillman's method.

    b. Bass method.

    c. Rolling stroke method.

    d. Charter's method.

    e. Fone's method.

10. Which toothbrushing method is useful for patients with severe loss of interdental papilla height, fixed prosthetic appliances, or previous gingival surgery?

    a. Modified Stillman's method.

    b. Bass method.

    c. Rolling stroke method.

    d. Charter's method.

    e. Fone's method.

11. Which toothbrushing method consists of holding the brush at a right angle to the teeth and scrubbing back and forth on the facial, lingual, and occlusal surfaces?

    a. Charter's method.

    b. Modified Stillman's method.

    c. Horizontal method.

    d. Bass method.

    e. Rolling stroke method.

12. Which dentrifice is too abrasive or too difficult to control?

    a. Liquid-type dentifrice.

    b. Powder-type dentifrice.

    c. Paste-type dentifrice.

13. As a field expedient method,_____ can be used as a dentifrice.

    a. Table salt.

    b. A mouthwash.

    c. Sodium bicarbonate.

    d. Items "a" and "c" above.

    e. Items "a," "b," and "c" above.

14. What is the name of the water-soluble vegetable dye which stains plaque a brilliant red? _____

15. a. The _____ surfaces of teeth represent about one-half of the areas affected by dental caries and nearly all early periodontal disease.

    b. The use of _____ is the method of choice for cleaning proximal surfaces.

16. When using dental floss, the recommended length is:

    a. 12 to 18 inches of floss.

    b. 18 to 24 inches of floss.

17. Before flossing, dental floss is wrapped:

    a. Evenly around the middle fingers.

    b. Mostly on one finger.

18. When dental floss is passed over the left thumb and the index finger of the right hand, the individual is cleaning the:

    a. Maxillary right teeth.

    b. Mandibular teeth.

    c. Maxillary left teeth.

19. When dental floss is held over the ends of the index fingers of both hands, the individual is cleaning the:

    a. Maxillary right teeth .

    b. Mandibular teeth.

    c. Maxillary left teeth.

20. Complete statements related to effective flossing.

    a. Where contact areas are tight and flossing is difficult, use a _____ motion to get the floss between the teeth.

    b. Move the floss up and down _____ or _____ times (with both fingers) on the proximal surface of a tooth.

    c. For thorough cleaning, work the floss as far down as it will go into the gingival sulcus, without inducing _____.

    d. When floss becomes frayed or soiled, use a _____of floss.

21. With careless use, which of the following are more likely to cause damage to oral tissues?

    a. Interdental stimulators.

    b. Water-jet devices.

    c. Mouthwashes.

    d. Toothpicks.

22. Which of the following does NOT provide any real therapeutic benefit?

    a. Interdental stimulators.

    b. Water-jet devices.

    c. Mouthwashes.

    d. Toothpicks.

23. For certain types of patients, the _____ water-jet device is recommended for use.

    a. Pulsating.

    b. Nonpulsating.

24. Complete statements regarding the the use of water-jet devices.

    a. The pressure switch is kept below the _____ level.

    b. The jet stream should be directed at _____ _____ to the tooth axis.

25. For patients who have moderate to severe recession of interproximal gingiva, the use of _____ is recommended.

    a. Toothpicks.

    b. Mouthwashes.

    c. Water-jet devices.

    d. Interdental stimulators.

26. The interdental stimulator that is triangular in cross section is the:

    a. Rubber-tipped stimulator.

    b. Balsa wood stimulator.

27. Complete statements related to nutrition and diet.

    a. There is considerable evidence that _____,

    particularly _____, play an important role in plaque

    formation and in the initiation and development of caries.

    b. There is direct correlation between the frequency of _____

    _____ _____and the activity of caries.

    c. Experience in nutrition counseling shows that it is important to involve

    _____ _____when working to solve the patient's problem.

28. Select the vegetables that are considered to be more nutritious.

    a. Celery and corn.

    b. Squash and onions.

    c. Spinach and carrots.

    d. Potatoes and tomatoes.

29. Which of the food groups provide over 50 percent of food energy?

    a. Milk, yogurt, and cheese group.

    b. Meat, poultry, fish, dry beans, eggs, and nuts group.

    c. Vegetable group.

    d. Bread, cereal, rice, and pasta group.

    e. Fruit group.

30. The best defense against dental caries caused by refined carbohydrates (sugars) is keeping the teeth well cleaned by _____ and by _____.

Check Your Answers on Next Page

SOLUTIONS TO EXERCISES, LESSON 4

1. c (para 4-2)

2. himself (para 4-3)

3. e (para 4-4)

4. clean; stimulate (para 4-5a)

5. a. tips
   b. sides (para 4-7)

6. c (para 4-8b)

7. a (para 4-8c)

8. b (para 4-8a)

9. e (para 4-8e)

10. d (para 4-8c)

11. c (para 4-8f)

12. b (para 4-9)

13. d (para 4-9)

14. Erythrosin. (para 4-10)

15. a. proximal.
    b. dental floss (para 4-11a)

16. b (para 4-11b)

17. b (para 4-11b)

18. c (para 4-11c)

19. b (para 4-11c)

20. a. seesaw
    b. four; five
    c. pain
    d. new section (para 4-12)

21. d (para 4-13b)

22. c (para 4-13c)

23. a (para 4-13d)

24. a. high
    b. right angles (para 4-13d)

25. d (para 4-13e)

26. b (para 4-13e)

27. a. fermentable carbohydrates; sucrose (para 4-14)
    b. between-meal snacks (para 4-15)
    c. the patient (para 4-15)

28. c (para 4-16b)

29. d (para 4-16a)

30. toothbrushing; flossing (para 4-17)

End of Lesson 4

APPENDIX A

GUIDANCE ON PREVENTIVE DENTISTRY PROGRAM ADMINISTRATION

A. MILITARY SOURCES OF INFORMATION:

1. AR 40-3, Medical, Dental, and Veterinary Care.

2. AR 40-5, Preventive Medicine.

3. AR 40-35, Preventive Dentistry.

4. TB MED 576, Sanitary Control and Surveillance of Water Supplies at Fixed Installations.

5. TB Med 577, Sanitary Control and Surveillance of Field Water Supplies.

6. The Consultant to The Surgeon General in Public Health Dentistry, Office of the Chief, U.S. Army Dental Corps, Falls Church, VA 22041.

7. United States Army Medical Command Preventive Dentistry Program Manager, Fort Sam Houston, TX 78234

B. CIVILIAN SOURCES OF INFORMATION:

1. Department of Health and Human Services, 200 Independence Ave. SW, Washington, D.C. 20201.

   (a) Public Health Service, Office of the Assistant Secretary for Health, 200 Independence Ave. SW, Washington, D.C.

   (b) Centers for Disease Control, 1600 Clifton Rd. NE, Atlanta, GA 30330.

   (c) Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857.

   (d) National Institutes of Health, National Institute of Dental Research, 900 Rockville Pike, Bethesda, MD 20205.

2. State Health Departments--Dental Divisions.

3. American Dental Association, Bureau of Dental Health Education, 211 E. Chicago Ave., Chicago, IL 60611.

4. *Accepted Dental Therapeutics*, American Dental Association, 211 E. Chicago Ave., Chicago, IL 60611.

5. *Access*, American Dental Hygienist's Association, 444 N. Michigan Ave., Suite 3400, Chicago, IL 60611.

6. *Caries Research*, S. Karger, AG, Allschwilerstrasse 10, P.O. Box CH-4009, Basel Swtzerland.

7. *Clinical Preventive Dentistry*, J. B. Lippincott Company, East Washington Square, Philadelphia, PA 19105.

8. *Journal of Community Health*, Human Sciences Press, 72 Fifth Ave., New York, NY 10011.

9. *Journal of Dental Research*, Professional Publication Procedures, Box 25027, Houston, TX 77005.

10. *Journal of Periodontal Research*, Kr. 740 Munksgaard, Noerre Soegade 35, DK-1370, Copenhagen K, Denmark.

11. *Journal of Periodontology*, American Academy of Peridontology, 211 E. Chicago Ave, Chicago, IL 60611.

12. *Journal of Public Health Dentistry*, American Association of Public Health Dentists, P.O. Box 7536, Springfield, IL, 62791.

13. *Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals*, Merck and Company, Inc., P.O. Box 2000, Rahway, NJ 07065.

14. *Physicians' Desk Reference to Pharmaceutical Specialties and Biologicals*, Medical Economics Company, Inc., Kinderkamack Rd., Oradel, NJ 07649.

15. *The Journal of the American Dental Association*, American Dental Association, 211 E. Chicago Ave., Chicago, IL 60611.

End of Appendix A

APPENDIX B

PATIENT EDUCATION:
SUGGESTED SEQUENCE OF APPOINTMENTS

A. FIRST APPOINTMENT

1. Record patient history.
2. Discuss relationship of dental plaque to dental disease.
3. Determine bleeding index and plaque index (record).
4. Discuss importance of plaque control (after disclosing patient).
5. Demonstrate correct brushing and flossing techniques.
6. Inform patient that mouth will be sore for several days.
7. Have patient demonstrate flossing.
8. Discuss problem areas.
9. Recommend appropriate adjuncts.
10. Recommended specific home-care therapy.

B. SECOND APPOINTMENT

1. Determine bleeding index and plaque index (record).
    a. Discuss progress.
    b. Encourage patient.
2. Disclose patient.
3. Evaluate patient's brushing and flossing techniques.
4. Discuss problem areas.
5. Record appropriate comments.
6. Dismiss patient.

C. THIRD APPOINTMENT

1. Determine bleeding index.

2. Disclose patient.

3. Determine plaque index (record).

    a. Discuss progress with patient.

    b. Encourage patient.

    c. Show patients their improvement on bleeding index and plaque index.

NOTE: It usually requires several days of good oral hygiene before the bleeding index improves substantially, so it is best to wait until the third appointment.

4. Discuss time required for flossing.

5. Have patient floss, emphasizing speed.

6. Recommend more emphasis on speed during third week.

7. Discuss problem areas.

8. Record appropriate remarks.

9. Dismiss patient.

D. FOURTH APPOINTMENT

1. Determine bleeding index.

2. Disclose patient.

3. Determining plaque index (record).

    a. Discuss progress.

    b. Encourage patient.

4. Have patient floss, again emphasizing speed.

5. Discuss any remaining problem areas.

6. Record appropriate remarks.

7. Dismiss patient.

End of Appendix B

APPENDIX C

DISEASE CONTROL PROGRAM NOTES

A. GINGIVAL BLEEDING INDEX (GBI)

STEP 1. Explain procedure to patient.

STEP 2. Floss the mesial and distal surfaces of teeth numbers 3, 8, 14, 19, 24, and 30.

NOTE: The floss should be inserted with gentle back and forth motion (sawing type motion) with the fingers touching the teeth. This will prevent the floss from snapping through the contact and possibly injuring the gingiva.

STEP 3. Floss each surface to the depth of the gingival sulcus and observe for 15 seconds.

STEP 4. Scoring.

a. No bleeding observed--score - 0.

b. Bleeding observed--score - 1.

STEP 5. Record the bleeding score on chart above the root of surface tested. Maximum Gingval Bleeding index (GBI) for each tooth is two. (Maximum GBI for the six teeth is 12.)

B. PLAQUE INDEX

STEP 1. Explain procedure to patient.

STEP 2. Stain patient's teeth using a disclosing tablet.

STEP 3. Use the facial surfaces of teeth numbers 3, 8, 14, and 24, and the lingual surfaces of teeth 19 and 30 to obtain plaque index. If these teeth are missing, use adjacent teeth.

STEP 4. Scoring.

a. Mentally divide the surface into thirds vertically.

b. Dental plaque in any one section scores 1.

c. Maximum score for any one tooth is 3.

STEP 5. Record tooth number and score. Multiply by six to obtain the score.

End of Appendix C

APPENDIX D

PREVENTIVE DENTISTRY SPECIALIST POSITIONS AND FINGER RESTS USED IN SCALING (RIGHT-HANDED PERSPECTIVE)

SURFACES	AREAS	SUGGESTED PDS POSITION	SUGGESTED FINGER REST	MOUTH MIRROR
Facial and proximal	Maxillary right posterior	9 o'clock	Lingual surfaces	No
Lingual	Maxillary right posterior	9 o'clock	Occlusal surfaces of adjacent teeth	Yes
All surfaces, sides toward	Maxillary anterior	8 o'clock	Linguoincisal edges of adjacent teeth	No
All surfaces, sides away	Maxillary anterior	12 o'clock	Linguoincisal edges of adjacent teeth	Yes
Facial and proximal	Maxillary left posterior	9 o'clock	Occlusal surfaces	No
Lingual	Maxillary left posterior	9 o'clock	Facial or occlusal surfaces of maxillary teeth	Yes
Facial and proximal	Mandibular left posterior	9 o'clock	Occlusal surfaces	No
Lingual	Mandibular left posterior	9 o'clock	Occlusal surfaces of these teeth	No
Facial and proximal, sides away	Mandibular anterior	12 o'clock	Facial surfaces	No
Facial and proximal, sides toward	Mandibular anterior	8 o'clock	Lingual surfaces	No
Lingual, sides away	Mandibular anterior	12 o'clock	Facial surfaces	Yes
Lingual, sides toward	Mandibular anterior	8 o'clock	Lingual surfaces	Yes
Facial and proximal	Mandibular right posterior	9 o'clock	Occlusal surfaces of these teeth	No
Lingual	Mandibular right posterior	9 o'clock	Occlusal surfaces of these teeth	Yes

End of Appendix D